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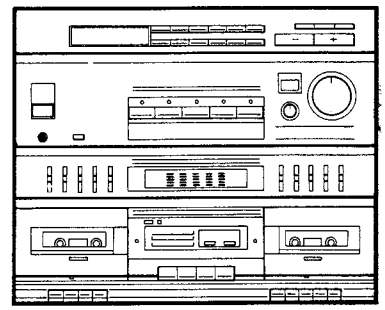
The future of sound and vision.

Service Manual



ORDER NO.
ARP1788

STEREO CASSETTE TAPE DECK RECEIVER

RX-722

RX-522

• **This manual is applicable to the RX-722/KU and RX-522/KU types.**

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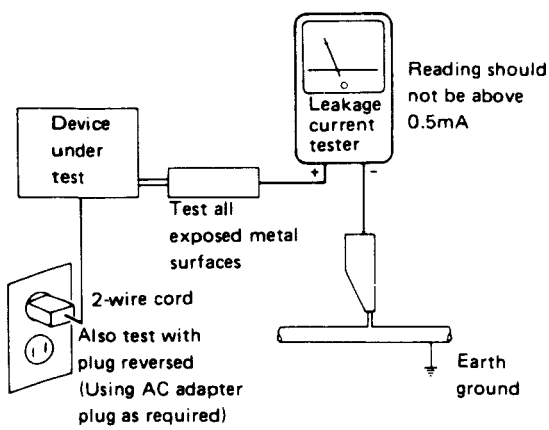
1. SAFETY INFORMATION

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.


Leakage current tester
Reading should not be above 0.5mA
Device under test
Test all exposed metal surfaces
2-wire cord
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. EXPLODED VIEWS AND PARTS LIST

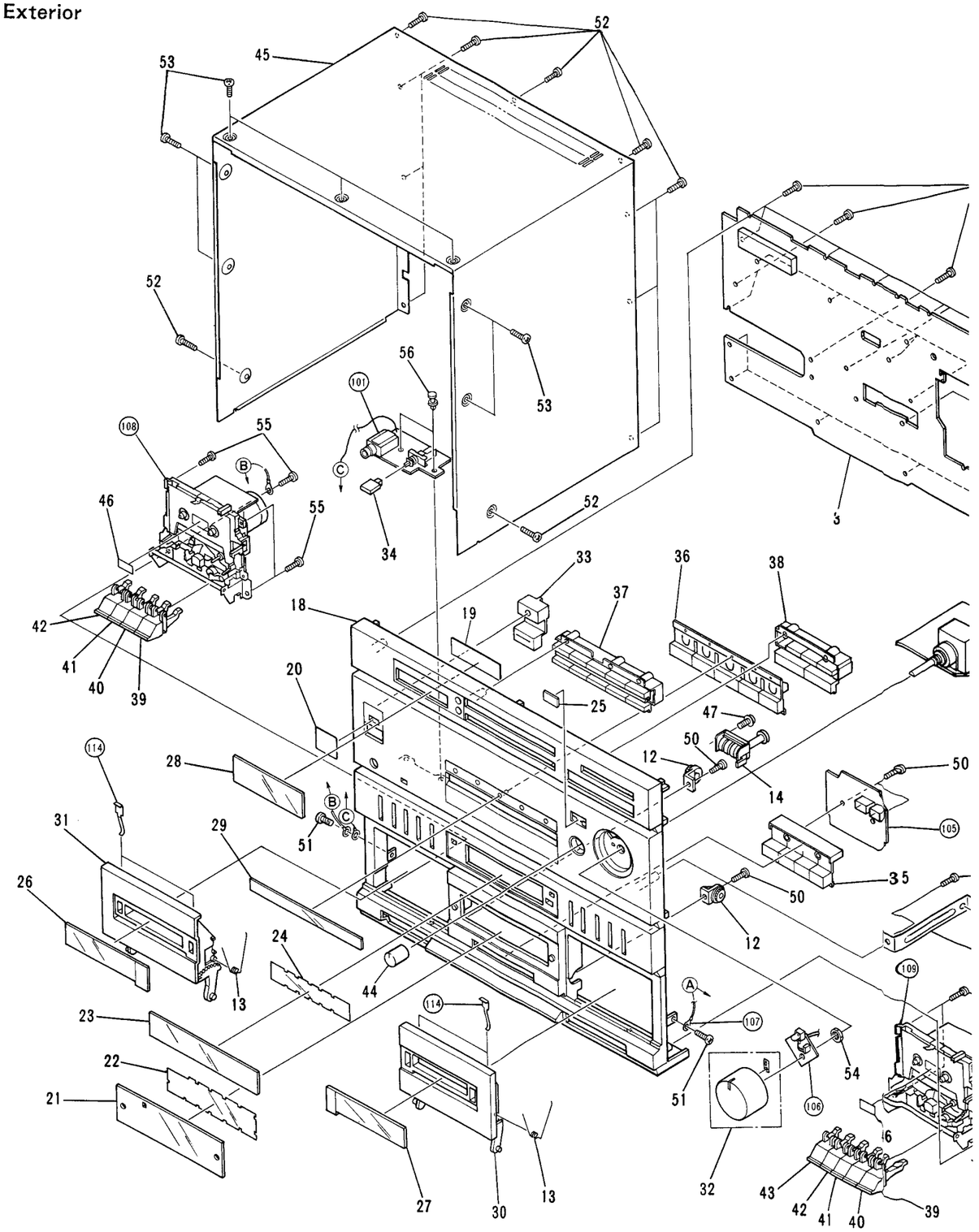
NOTES:
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

2.1 EXTERIOR

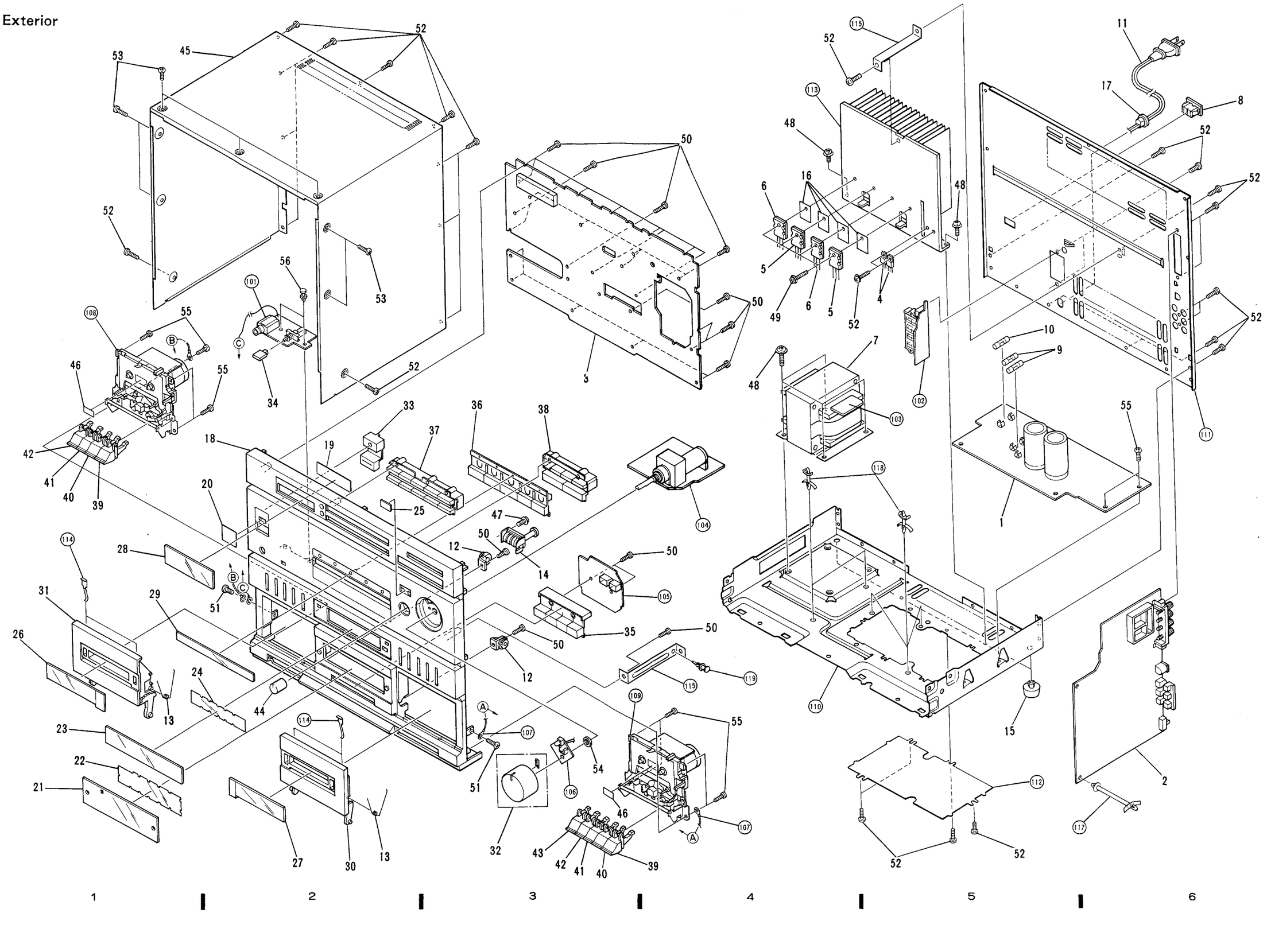
Parts list of Exterior

Mark	No.	Parts No.	Description
	1	AWZ2288	Power assembly
	2	AWZ2292	Complex assembly
	3	AWZ2294	Control assembly
⚠	4	NJM7812FA	Regulator IC (IC701,IC702)
⚠	5	2SA1302	Transistor (Q3,Q4)
⚠	6	2SC3281	Transistor (Q1,Q2)
⚠	7	ATS1196	Power transformer (RX-722 type)
		ATS1197	Power transformer(RX-522 type)
⚠	8	AKP1015	AC socket (1P OUTLET)
⚠	9	AEK-122	Fuse (2A/125V,FU2,FU3)
⚠	10	AEK-309	Fuse (6.3A/125V,FU1)
⚠	11	ADG1033	AC Power cord
	12	AXA1004	Damper assembly
	13	ABH1043	Door spring
	14	AAW1008	Counter
	15	AEC-784	Leg assembly
	16	AEE1014	Mica sheet
	17	AEP-113	Strain relief
	18	AMB1503	Front panel (RX-722 type)
		AMB1504	Front panel (RX-522 type)
	19	AAK1227	FL filter
	20	AAK1727	Power panel
	21	AAK1728	Deck center panel A
	22	AAK1729	Deck center panel B
	23	AAK1730	Spectrum analyzer panel A
	24	AAK1731	Spectrum analyzer panel B
	25	AAK1680	IR filter
	26	AAK1732	Door panel L
	27	AAK1733	Door panel R
	28	AAK1734	Tuner display panel
	29	AAK1735	Function panel
	30	AAN1131	Door R
	31	AAN1132	Door L
	32	AAB1102	Rotary knob assembly
	33	AAD1336	Button (POWER)
	34	AAD1544	Push button
	35	AAD1576	Button (COPY)
	36	AAD1577	Button (FUNCTION)
	37	AAD1578	Button (STATION)
	38	AAD1579	Button (BAND)
	39	AAE1119	Button (DECK)
	40	AAE1120	Button (DECK)
	41	AAE1121	Button (DECK)
	42	AAE1122	Button (DECK)
	43	AAE1123	Button (DECK)
	44	RAC1211	VR knob B
	45	ANE1179	Bonnet case
	46	AAX1301	Remain display sheet
	47	ABA1005	Screw
	48	ABA1021	Screw (3 × 10)
	49	ABA1037	Screw (3 × 14)
	50	BBZ26P080FMC	Screw
	51	BBZ30P080FMC	Screw
	52	BBZ30P080FZK	Screw
	53	BPZ30P100FZK	Screw
	54	NK90FUC	Nut
	55	VPZ30P080FMC	Screw
	56	AMR1066	Plastic revet
	101		Head phone assembly
	102		SP Out assembly
	103		Connect assembly
	104		Main VR assembly
	105		Deck SW assembly
	106		VR LED assembly
	107		Earth lead
	108		Tape transport unit (DECK Ⅰ)
	109		Tape transport unit (DECK Ⅱ)
	110		Chassis
	111		Rear panel
	112		Bottom plate
	113		Heat sink
	114		Keep plate
	115		PCB Heat sink holder
	116		Binder
	117		PC suport
	118		Spacer
	119		Pin grommet

Exterior



Exterior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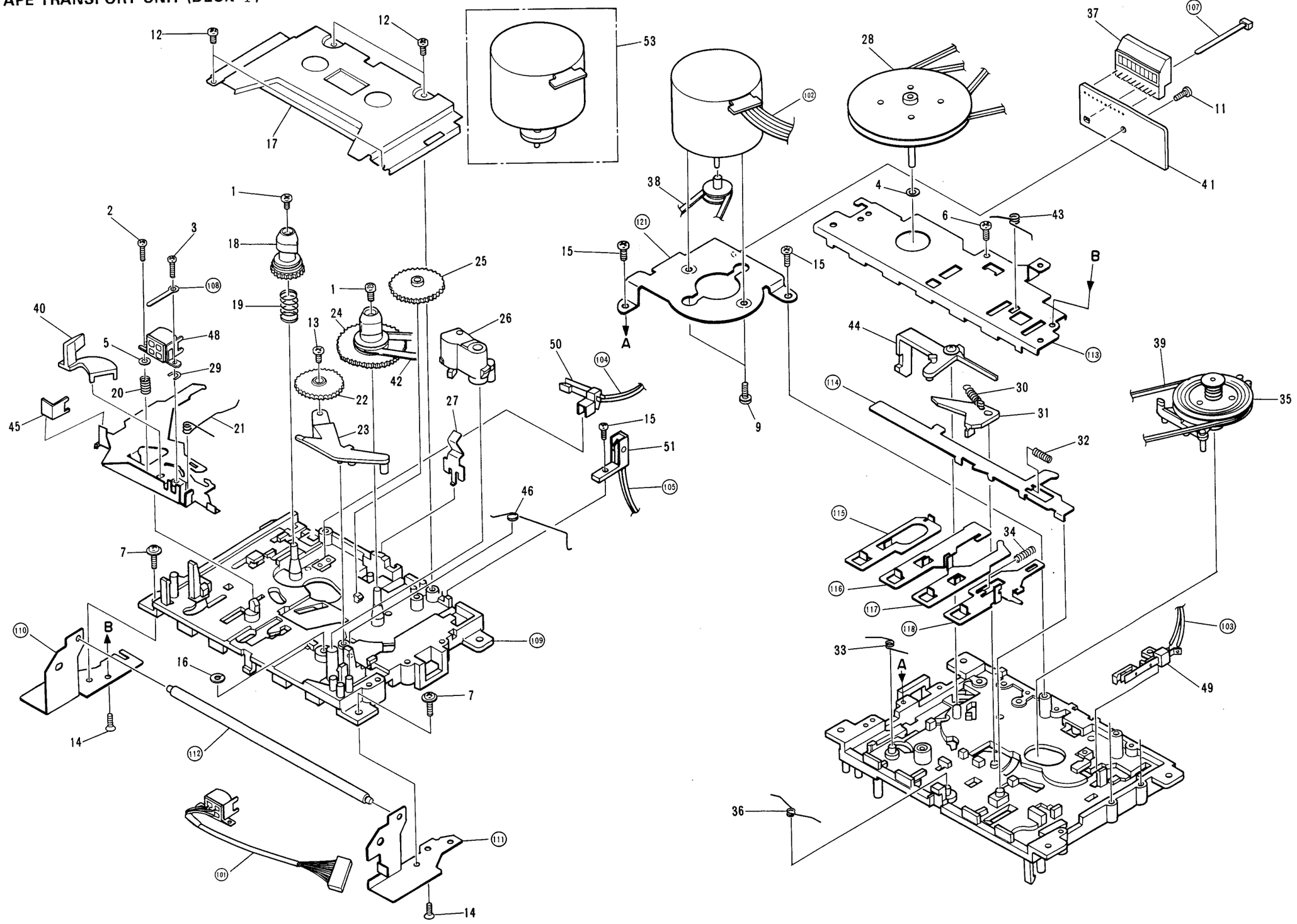
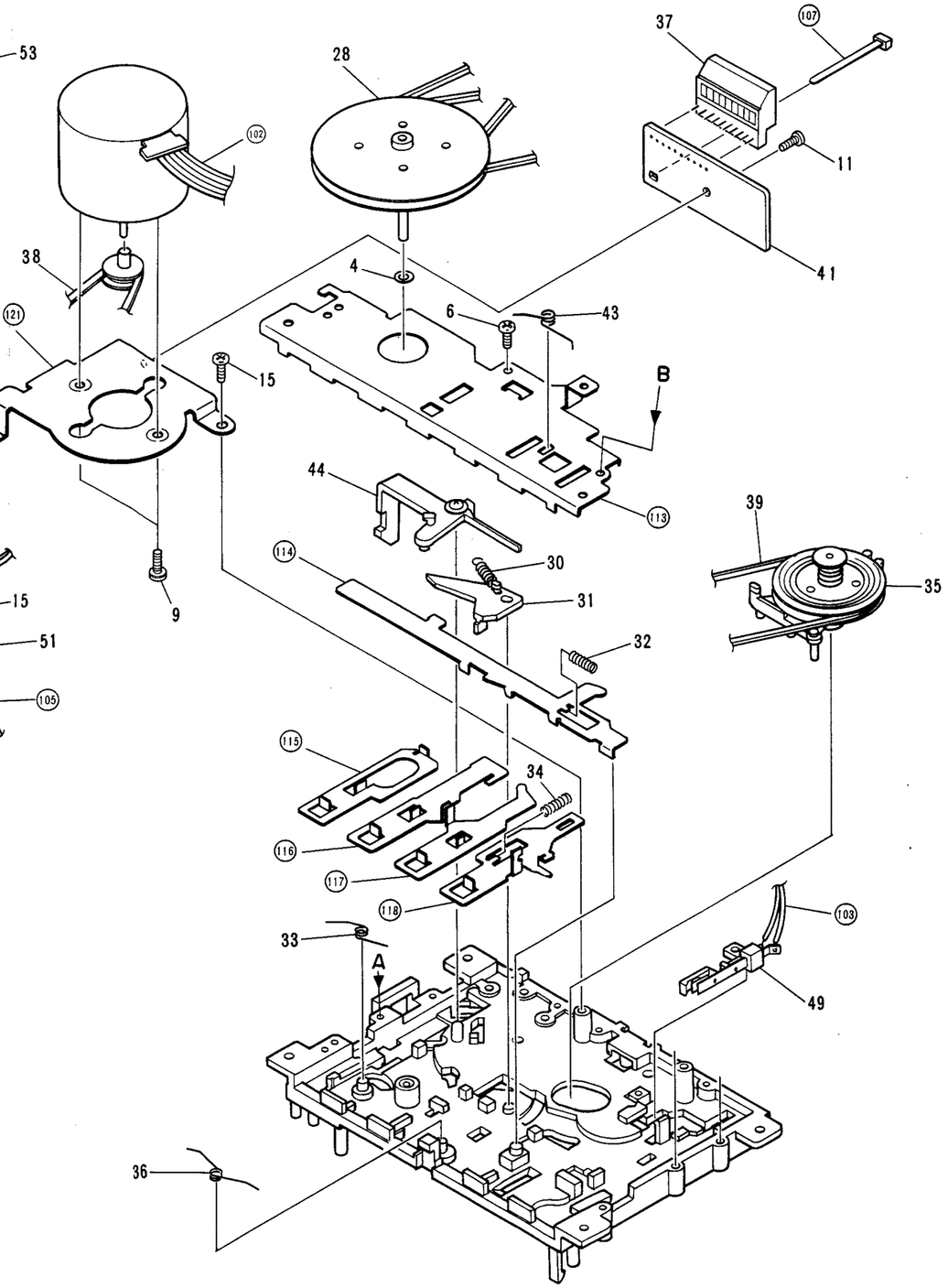
2.2 TAPE TRANSPORT UNIT (DECK 1)



Parts lis

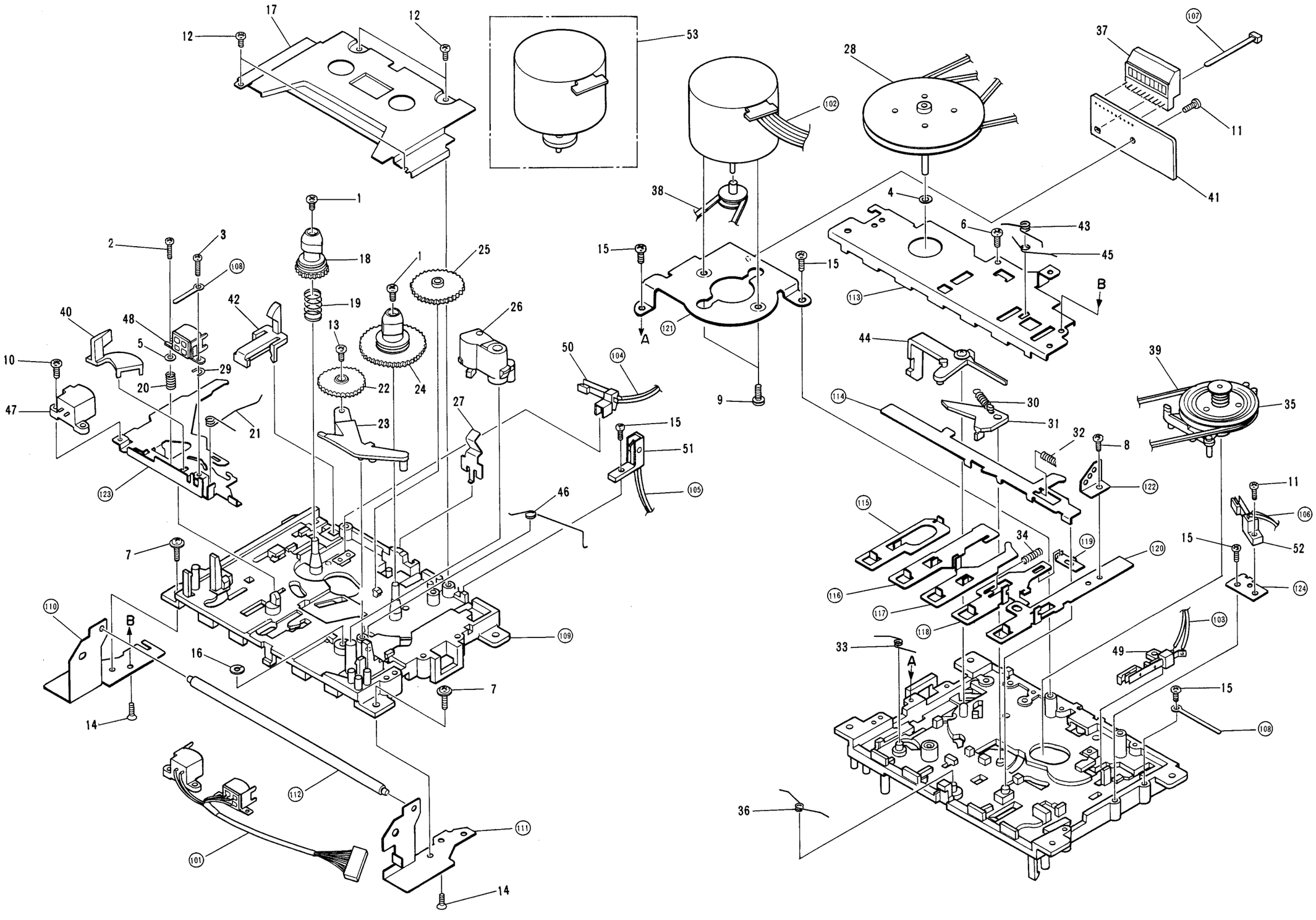
Mark N



Parts list of Tape transport unit (DECK I)

Mark	No.	Parts No.	Description
	1	AZB1165	Bush D
	2	AZB1166	N screw
	3	AZB1167	P screw
	4	AZB1168	P washer
	5	AZB1169	F washer
	6	AZB1170	Bush C
	7	AZB1171	D screw
	8	.....	.....
	9	AZB1173	P screw
	10	.....	.....
	11	AZB1176	D screw
	12	AZB1183	L screw
	13	AZB1184	Bush
	14	AZB1190	L screw
	15	AZB1191	L screw
	16	AZB1194	N washer
	17	AZN1902	Mechanism cover
	18	AZN1480	S reel
	19	AZN1481	C spring
	20	AZN1482	Azimuth C spring
	21	AZN1483	Pinch arm spring
	22	AZN1484	Idler gear
	23	AZN1485	Idler arm
	24	AZN1486	T reel assembly
	25	AZN1487	F gear
	26	AZN1488	Pinch arm assembly
	27	AZN1489	Cassette spring
	28	AZN1491	FW assembly W
	29	AZN1494	Spacer C
	30	AZN1498	T spring
	31	AZN1499	S arm
	32	AZN1500	C spring
	33	AZN1501	Spring
	34	AZN1502	C spring
	35	AZN1503	Power arm assembly
	36	AZN1504	Spring
	37	AZN1901	Connector
	38	AZN1506	Belt
	39	AZN1507	Belt
	40	AZN1508	Tape sensor
	41	AZN1571	Main PCB
	42	AZN1899	Counter belt
	43	AZN1752	Spring
	44	AZN1753	Eject arm
	45	AZN1900	Tape guide
	46	AZN1922	Spring
	47	.....	.....
	48	AZP1036	R/P head
	49	AZS1059	Leaf switch (MOTOR)
	50	AZS1060	Leaf switch (MUTE)
	51	AZS1061	Leaf switch (CrO2)
	52	.....	.....
	53	AZX1021	Motor assembly
	101		Connector assembly
	102		Jumper wire
	103		Lead wire
	104		Lead wire
	105		Lead wire
	106		.....
	107		Nylon band
	108		Lug plate
	109		Chassis assembly
	110		Holder button
	111		Holder button R
	112		Shaft
	113		Back plate
	114		Function lever
	115		SE lever
	116		FF lever
	117		REW lever
	118		PLAY lever
	119		.....
	120		.....
	121		Motor bracket
	122		.....
	123		Head base B

2.3 TAPE TRANSPORT UNIT (DECK Ⅱ)



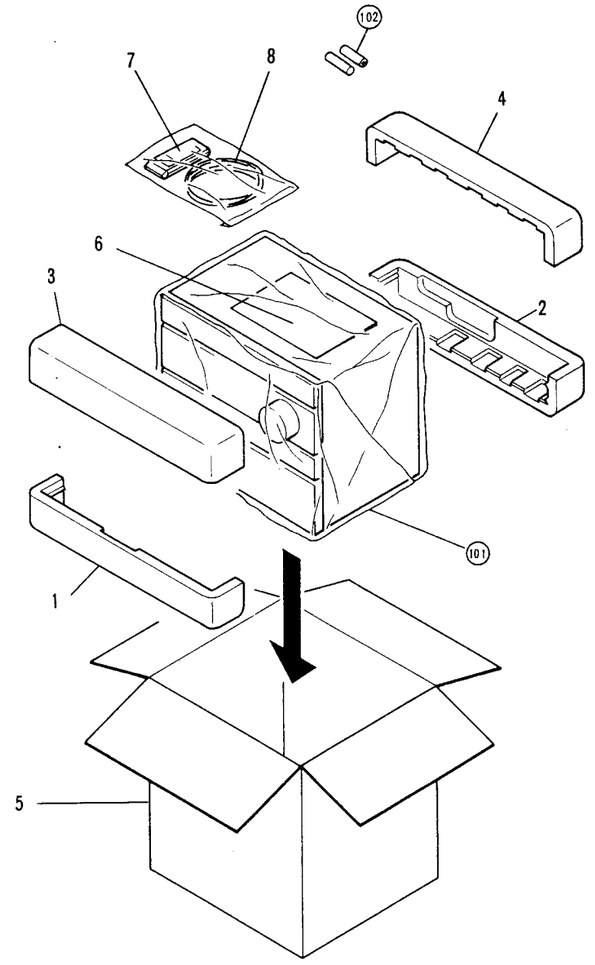
Parts list of Tape transport unit (DECK Ⅱ)

Mark	No.	Parts No.	Description
	1	AZB1165	Bush D
	2	AZB1166	N screw
	3	AZB1167	P screw
	4	AZB1168	P washer
	5	AZB1169	F washer
	6	AZB1170	Bush C
	7	AZB1171	D screw
	8	AZB1172	D screw
	9	AZB1173	P screw
	10	AZB1175	D bind screw
	11	AZB1176	D screw
	12	AZB1183	L screw
	13	AZB1184	Bush
	14	AZB1190	L screw
	15	AZB1191	L screw
	16	AZB1194	N washer
	17	AZN1479	Mechanism cover
	18	AZN1480	S reel
	19	AZN1481	C spring
	20	AZN1482	Azimuth C spring
	21	AZN1483	Pinch arm spring
	22	AZN1484	Idler gear
	23	AZN1485	Idler arm
	24	AZN1486	T reel assembly
	25	AZN1487	F gear
	26	AZN1488	Pinch arm assembly
	27	AZN1489	Cassette spring
	28	AZN1491	FW assembly W
	29	AZN1494	Spacer C
	30	AZN1498	T spring
	31	AZN1499	S arm
	32	AZN1500	C spring
	33	AZN1501	Spring
	34	AZN1502	C spring
	35	AZN1503	Power arm assembly
	36	AZN1504	Spring
	37	AZN1505	Connector
	38	AZN1506	Belt
	39	AZN1507	Belt
	40	AZN1508	Tape sensor
	41	AZN1571	Main PCB
	42	AZN1572	Interlock arm
	43	AZN1752	Spring
	44	AZN1753	Eject arm
	45	AZN1903	Spring
	46	AZN1922	Spring
	47	AZP1025	E head
	48	AZP1036	R/P head
	49	AZS1059	Leaf switch (MOTOR)
	50	AZS1060	Leaf switch (MUTE)
	51	AZS1061	Leaf switch (CrO2)
	52	AZS1062	Leaf switch (REC)
	53	AZX1021	Motor assembly
	101		Connector assembly
	102		Jumper wire
	103		Lead wire
	104		Lead wire
	105		Lead wire
	106		Lead wire
	107		Nylon band
	108		Lug plate
	109		Chassis assembly
	110		Holder button
	111		Holder button R
	112		Shaft
	113		Back plate
	114		Function lever
	115		SE lever
	116		FF lever
	117		REW lever
	118		PLAY lever
	119		REC STOP lever
	120		REC lever
	121		Motor bracket
	122		RSW lever
	123		Head base B
	124		SW plate

3. PACKING

Parts list of Packing

Mark	No.	Parts No.	Description
	1	AHA1242	Front pad A
	2	AHA1243	Rear pad A
	3	AHA1244	Front pad B
	4	AHA1245	Rear pad B
	5	AHD1647	Packing case (RX-722 type)
		AHD1648	Packing case (RX-522 type)
	6	ARB1179	Operating instructions (English)
	7	AXD1048	Remote control unit
	8	AEA1007	Antenna set
	101		Sheet
	102		Battery



4. SCHEMATIC DIAGRAM

1. RESISTORS:
Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance

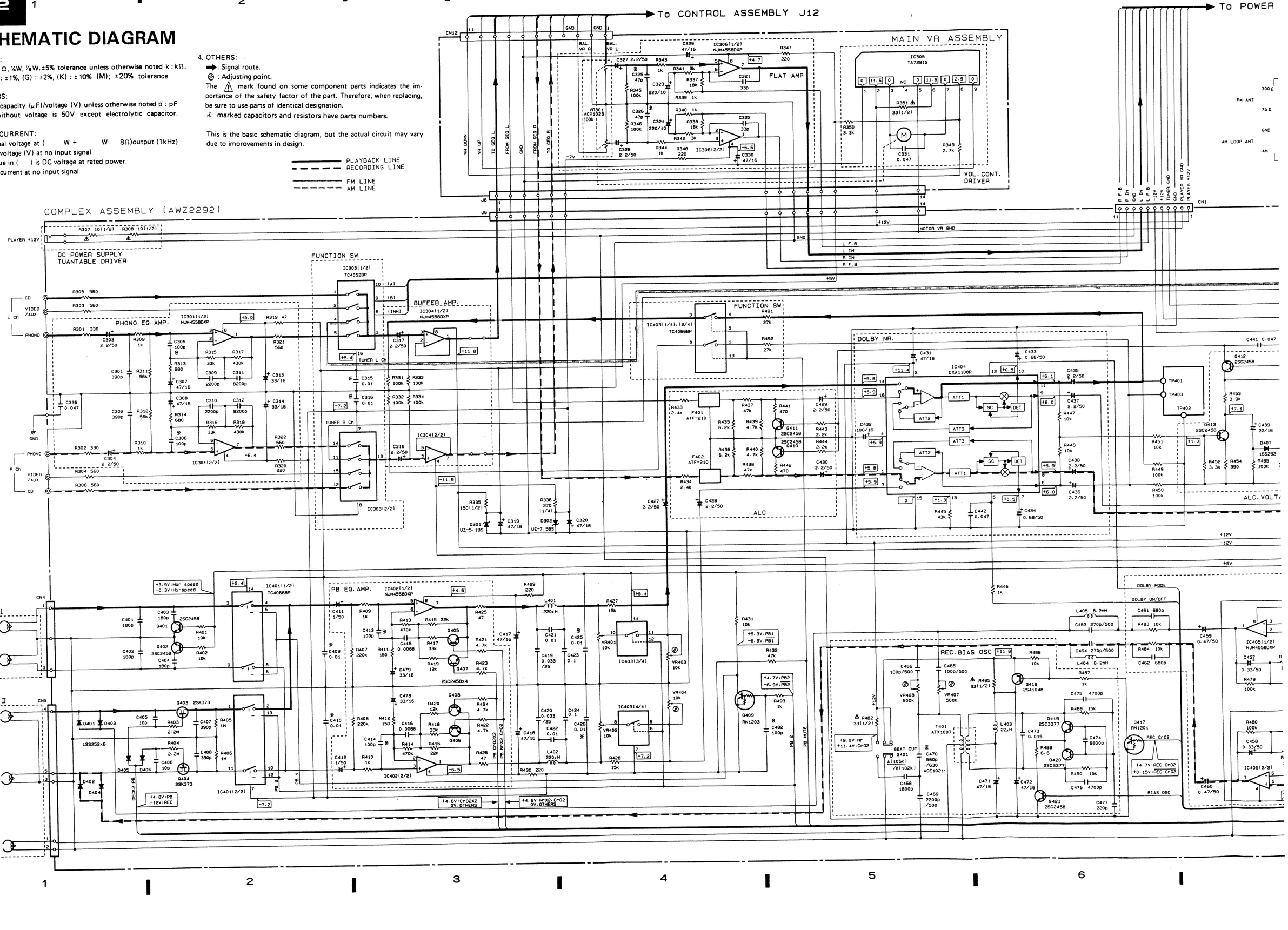
2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

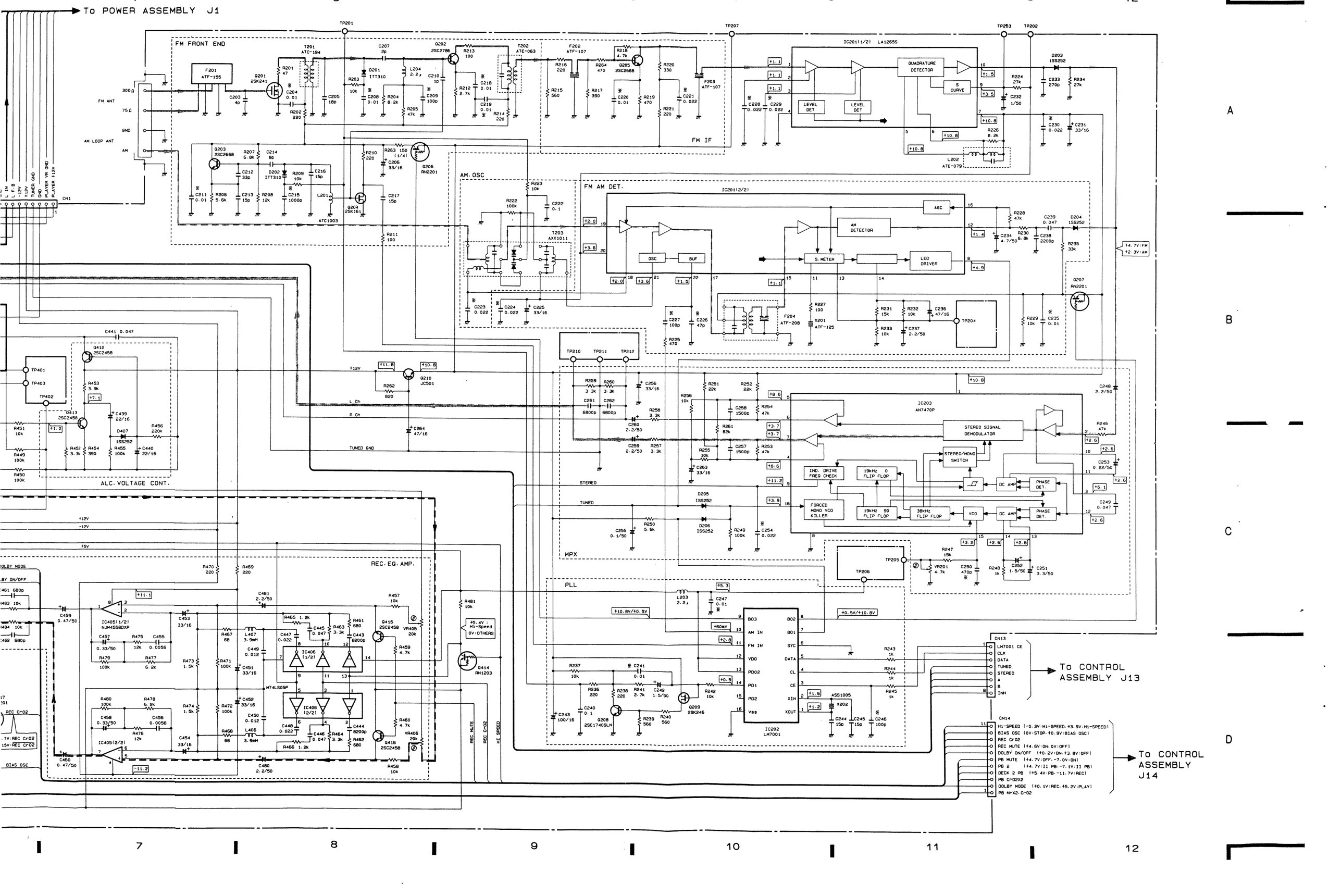
3. VOLTAGE, CURRENT:
: Signal voltage at (W + W 8Ω)output (1kHz)
: DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.
⇦ mA : DC current at no input signal

4. OTHERS:
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

PLAYBACK LINE
RECORDING LINE
FM LINE
AM LINE




To POWER ASSEMBLY J1
FM FRONT END
FM IF
AM. OSC
FM AM DET.
IC201(1/2) LA1265S
IC201(2/2)
QUADRATURE DETECTOR
S CURVE
LEVEL DET
AGC
AM DETECTOR
S.METER
LED DRIVER
OSC
BUF
IC203 AN7470P
STEREO SIGNAL DEMODULATOR
STEREO/MONO SWITCH
IND. DRIVE FREQ CHECK
19kHz 0 FLIP FLOP
19kHz 90 FLIP FLOP
38kHz FLIP FLOP
VCO
DC AMP
PHASE DET.
FORCED MONO VCO KILLER
MPX
PLL
IC202 LM7001
ALC. VOLTAGE CONT.
REC. EQ. AMP.
IC405(1/2) NJM4558DXP
IC405(2/2)
IC406 (1/2)
IC406 (2/2)
M74LS05P
CN1
CN13
CN14
To CONTROL ASSEMBLY J13
To CONTROL ASSEMBLY J14
LM7001 CE
CLK
DATA
TUNED
STEREO
A
B
INH
Hi-SPEED (-0.3V:Hi-SPEED, +3.9V:Hi-SPEED)
BIAS OSC (0V:STOP, +0.9V:BIAS OSC)
REC Cr02
REC MUTE (+4.6V:ON, 0V:OFF)
DOLBY ON/OFF (+0.2V:ON, +3.8V:OFF)
PB MUTE (+4.7V:OFF, -7.0V:ON)
PB 2 (+4.7V:II PB, -7.1V:II PB)
DECK 2 PB (+5.4V:PB, -11.7V:REC)
PB Cr02X2
DOLBY MODE (+0.1V:REC, +5.2V:PLAY)
PB NrX2, Cr02
+4.7V:FM
+2.3V:AM
+12V
-12V
+5V
L Ch
R Ch
TUNED GND
STEREO
TUNED
MUTE
REC Cr02
HI SPEED
BIAS OSC

CONTROL ASSEMBLY (AWZ2294)

L.R.BALANCE CONTROL

GRAPHIC EQ.

SYSTEM CONT.

IC51 PDG037

KEY MATRIX

RESET

REMOTE SENSOR SECTION

POWER SUPPLY FL.

VR LED ASSEMBLY

DECK SW ASSEMBLY

TAPE INDICATOR

To MAIN VR ASSEMBLY CN12

COMPLEX ASSEMBLY CN13

COMPLEX ASSEMBLY CN14

To COMPLEX ASSEMBLY CN1

SPECTRUM ANALYZER INDICATE DRIVER

330Hz / 1kHz / 3.3kHz / 10kHz

IC103 BA6144 · IC104 BA6144 · IC105 BA6144 · IC106 BA6144

D105(2/5) D105(3/5) D105(4/5) D105(5/5)

SPECTRUM ANALYZER B.P.F.

MAIN AMP

POWER ASSEMBLY (AWZ2288)

PROTECTION CIRCUIT

HEAD PHONE ASSEMBLY

PHONES AKN1010

SPEAKER SW

SP OUT ASSEMBLY

SP A · SP B

AKE-111

REMOTE OUT ANK-207

L IN · L FB · GND · R FB · R IN · -12V · +12V · TUNER GND · GND · PLAYER VR GND · PLAYER +12V

MUTE RY · REMOTE · STOP · POWER RY

DECK MOTOR DRIVE

DECK SPEED CONT.

DECK I

DECK II

POWER SUPPLY SUB

POWER SUPPLY MAIN

CONNECT ASSEMBLY

AC 120V 60Hz

ADG1033 AC POWER CORD

AKP1015 AC OUTLET (SWITCHED)

T1 ATS1196

T1 RX-722:ATS1196
RX-522:ATS1197

Figures enclosed in ( )* are for RX-522

VR LED ASSEMBLY

DECK SW ASSEMBLY

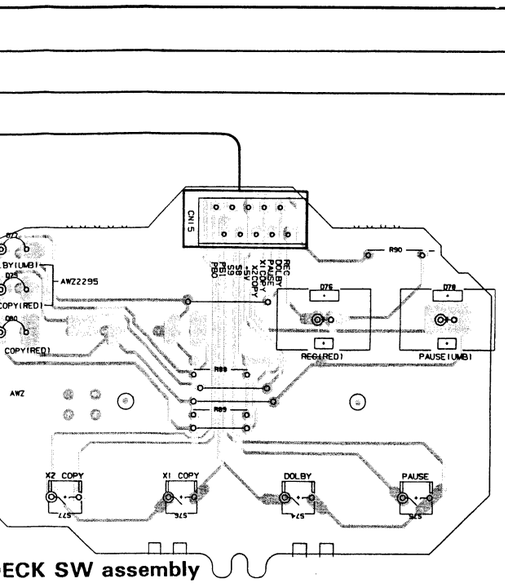
TAPE INDICATOR

DOLBY · PAUSE · X1 COPY · X2 COPY

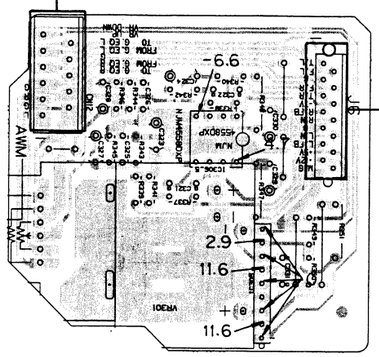
HI SPEED · MOTOR 2 · MOTOR 1 · PA1 · PA0 · PB3 · PB2 · PB0 · PLAY 2 SW

-12V:sig · -18V · +12V:sig · STOP · MUTE RY · POWER RY · +12V · +5.6V:ucom · REMOTE · GND

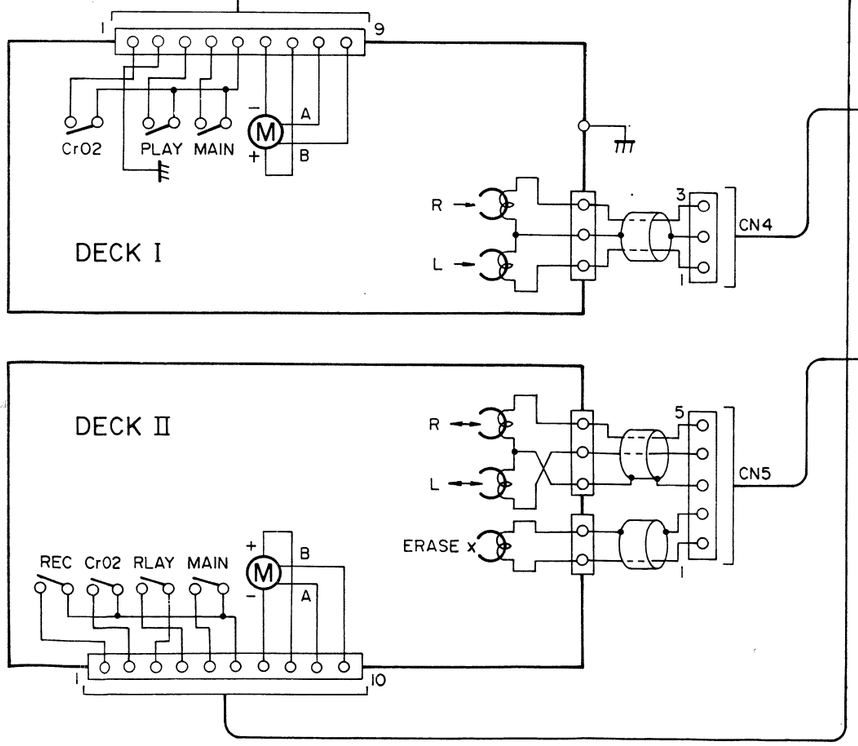
5. P.C.BOARDS CONNECTION DIAGRAM



ECK SW assembly



MAIN VR assembly



Q209 Q203 Q201
Q208
IC202 Q204
Q206
D206
D205 Q202 D201
VR201
Q205
Q207
IC201
Q210 D203
D204
Q409
D302
Q401 D301
Q402
IC401 IC301
Q408
Q406
D406 IC403
IC402
Q404
Q403
VR402
VR404
VR401
VR403
Q405
D401-D405
Q407
IC303
Q411
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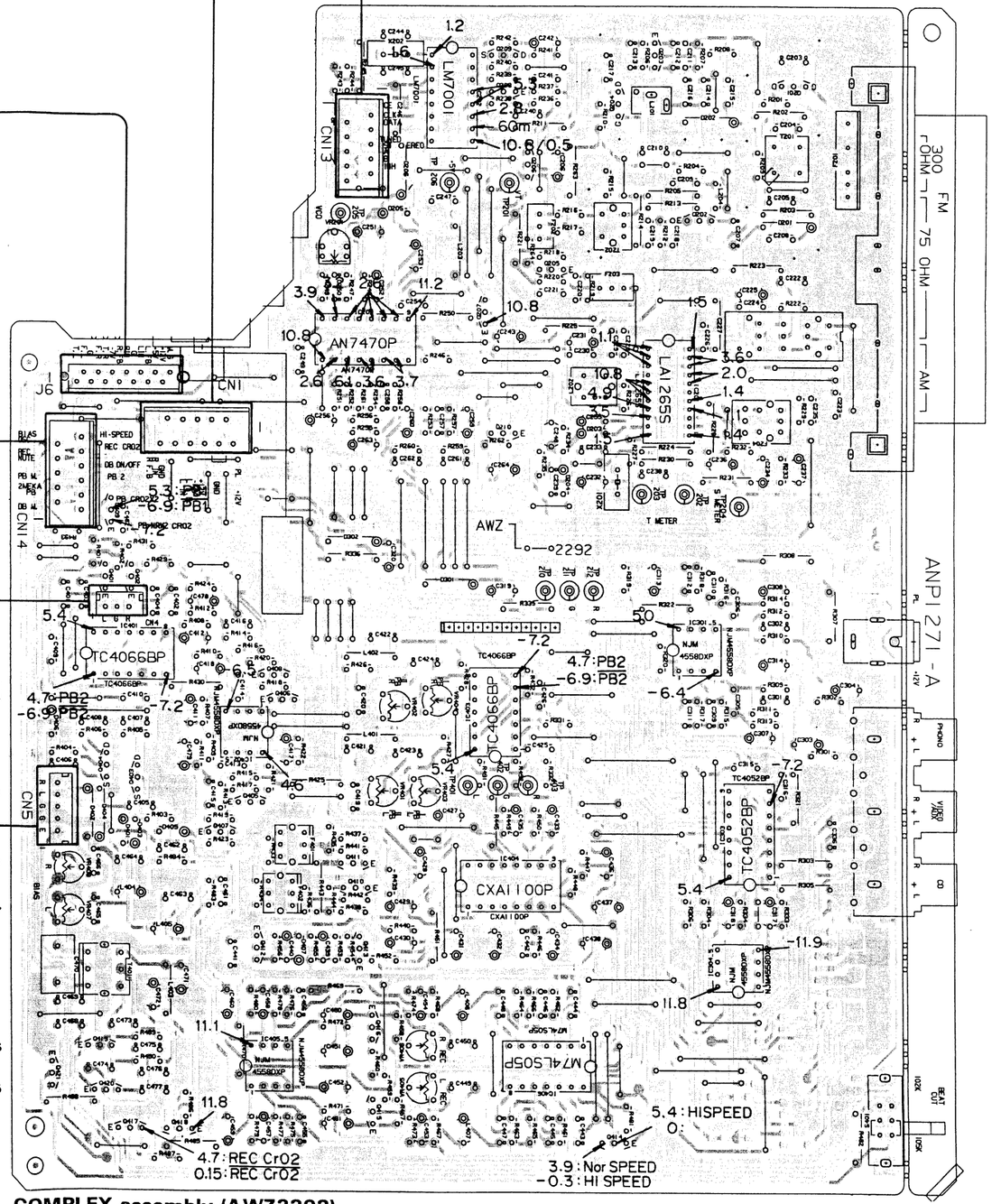
VR406
VR405
Q415
Q414



COMPLEX assembly (AWZ2292)

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

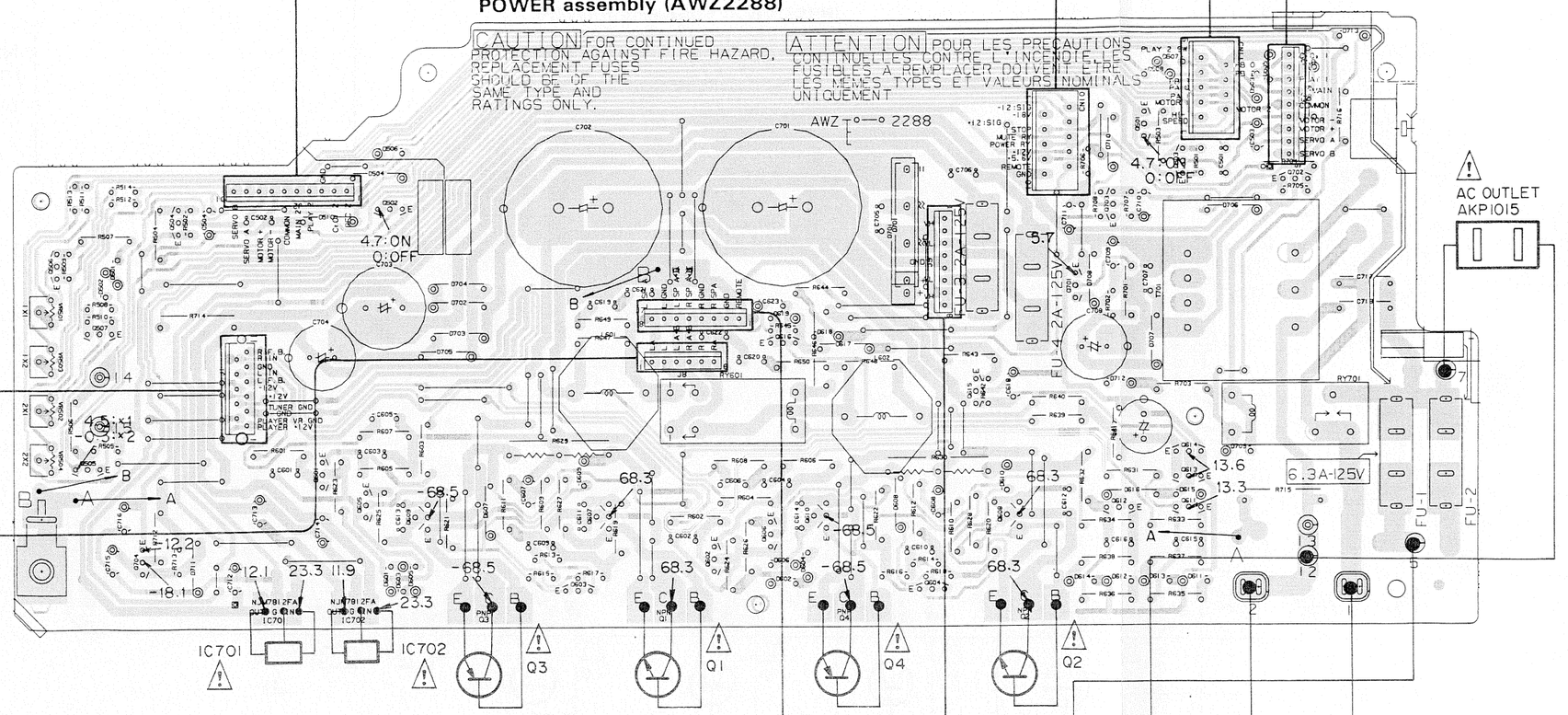
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 (E C B)	E C B or E C B	Transistor
Q215	or	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513	+	Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capactor terminal marked with ⓞ (double circles) shows negatine termianl.
4. The diode terminal marked with ⓒ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

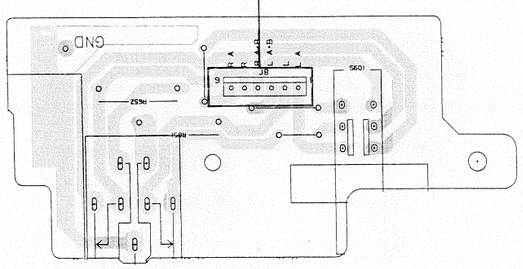
POWER assembly (AWZ2288)


CAUTION FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACEMENT FUSES SHOULD BE OF THE SAME TYPE AND RATINGS ONLY.
ATTENTION POUR LES PRECAUTIONS CONTINUELLES CONTRE L'INCENDIE, LES FUSIBLES A REMPLACER DOIVENT ETRE LES MEMES TYPES ET VALEURS NOMINALS UNIQUEMENT
AWZ 2288
AC OUTLET AKP1015
FU-1 6.3A-125V
FU-2 4.2A-125V
4.7:ON 0:OFF
IC701
IC702
Q1
Q2
Q3
Q4
TI POWER TRANSFORMER ATS1196
AC POWER CORD ADG1033 AC120V 60Hz

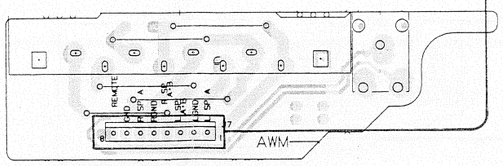
VR501 – VR504

D506 D504
Q506 Q507 D502 D501 Q504 D510 Q502 D701
Q505 D702 – D705 D609 Q616 D617 – D619
Q704 D711 Q601 Q605 Q609 D601 D603 D605 D607 Q603 Q607 Q602 Q606 D602 D606 D604 Q610

D710 Q501 D508 D507 D503 D505 D509 D713
Q701 D708 Q703 Q503 D706 Q702
Q615 D610 D712 D707 D709
D608 Q604 Q608 D611 – D614 Q611 – Q614 D616 D615



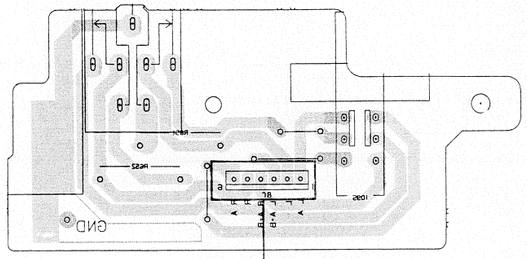
HEAD PHONE assembly



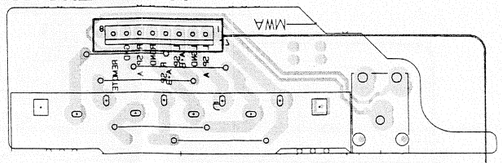
SP OUT assembly

CONNECT assembly

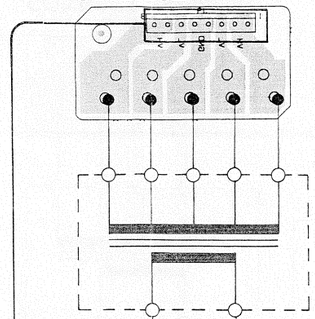
HEAD PHONE assembly

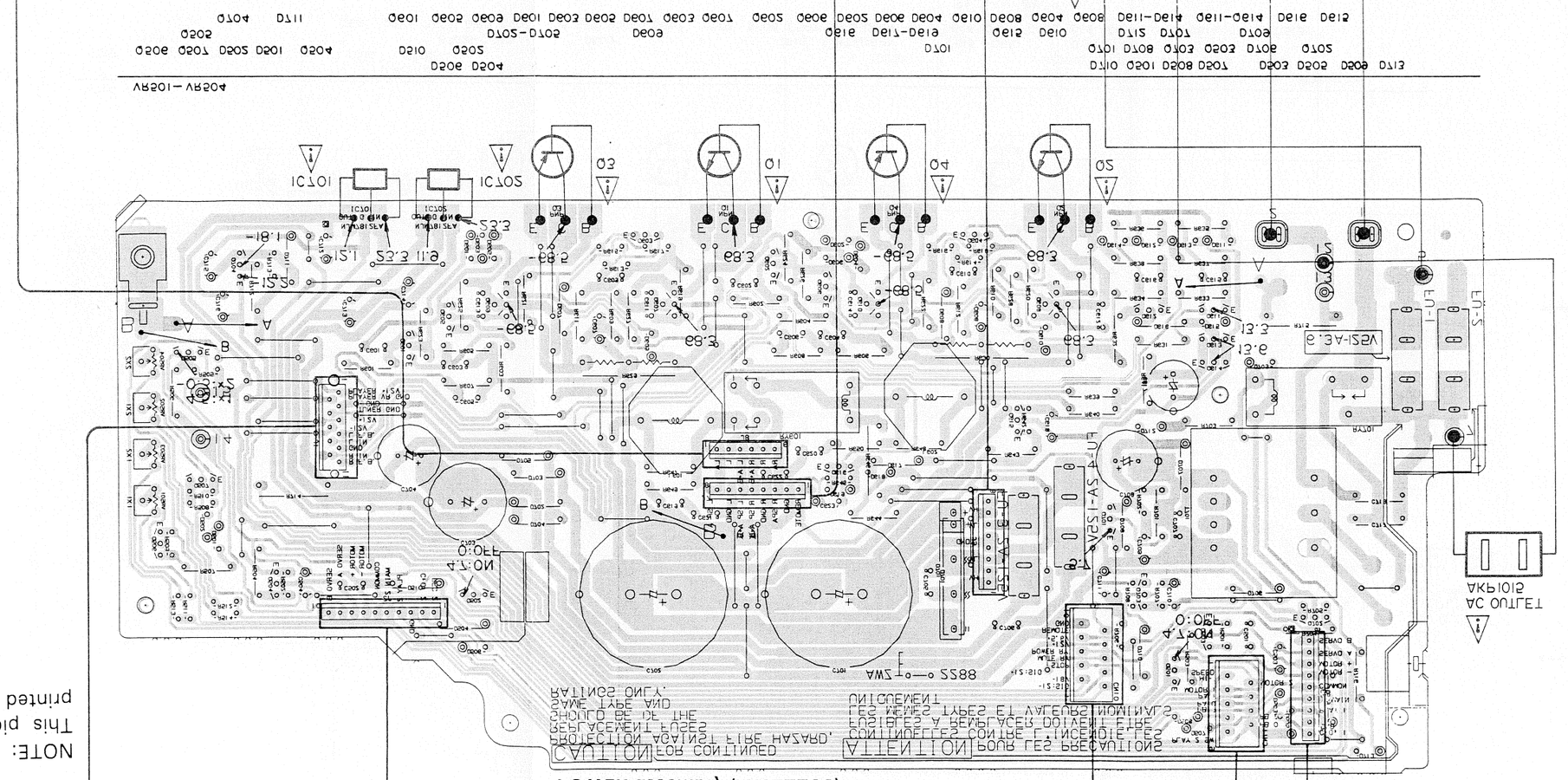


SP OUT assembly



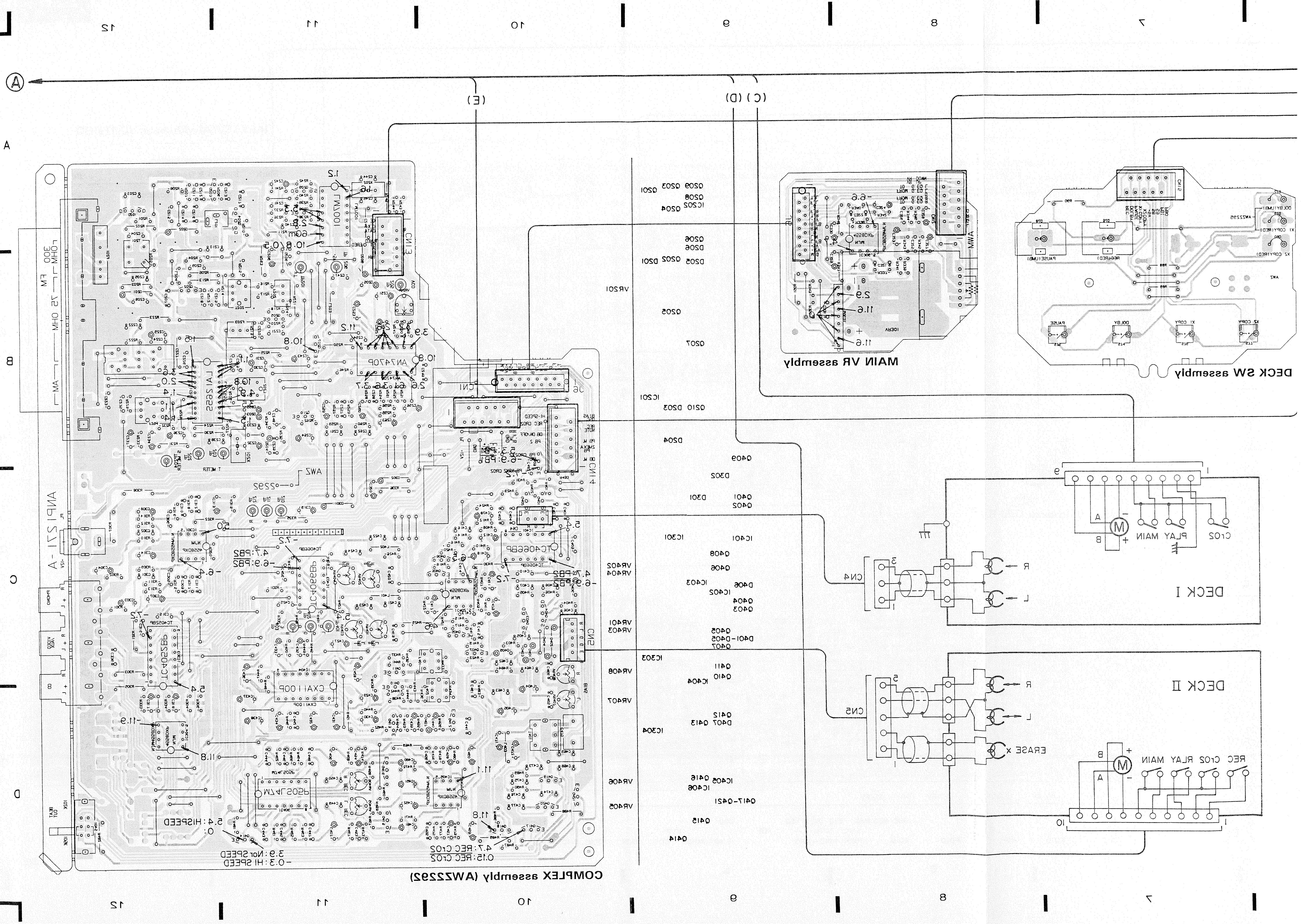
CONNECT assembly

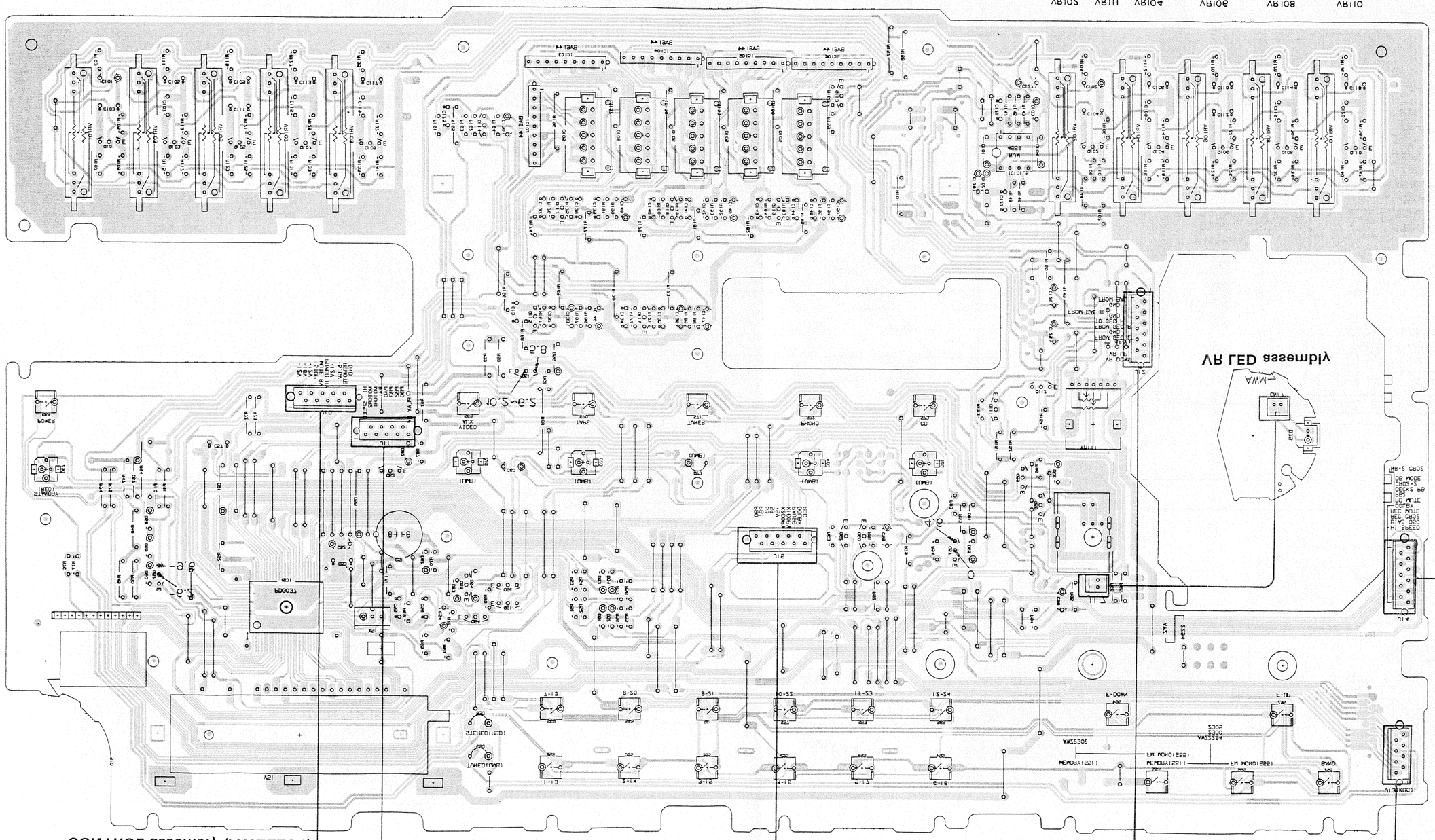




POWER assembly (AWX22588)

NOTE:
This picture shows the foil side of the printed circuit.


COMPLEX assembly (AWZ2292)
MAIN VR assembly
DECK SW assembly
DECK I
DECK II
CN4
CN5
ERASE
REC CrO2 PLAY MAIN
CrO2 PLAY MAIN
ANP1271-A
LA1265S
AN7470P
LM7001
TC4066BP
TC4052BP
CXA1100P
M5L5P
NJM4558DXP
3.9 : Nor SPEED
-0.3 : HI SPEED
5.4 : HISPEED
4.7 : REC CrO2
0.15 : REC CrO2
4.7 : PB2
-6.9 : PB2
PAUSE
DOLBY
X1 COPY
X2 COPY
AWZ2295


CONTROL assembly (AWS22WA)
DECK SW assembly
AV LED assembly
DECK II
DECK I
REC CLOS
PLAY
CLOS
PLAY
(A)
(B)

6. ELECTRICAL PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56 × 10¹*	*561*	*RD1/4PS 5 6 1 J*
47kΩ	*47 × 10³*	*473*	*RD1/4PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*	*5621*	*RN1/4SR 5 6 2 1 F*

Miscellaneous parts

P.C.BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
	Power assembly	AWZ2288
	Head phone assembly	
	SP Out assembly	
	Connect assembly	
	Complex assembly	AWZ2292
	Main VR assembly	
	Control assembly	AWZ2294
	DECK SW assembly	
	VR LED assembly	
	Pattern assembly	
⚠	IC701,IC702 Regulator IC	NJM7812FA
⚠	Q3,Q4 Transistor	2SA1302
⚠	Q1,Q2 Transistor	2SC3281
⚠	T1 Power transformer (AC120V)	ATS1196
⚠	AC Outlet (1P)	AKP1015
⚠	FU2,FU3 Small type fuse (2A/125V)	AEK−122
⚠	FU1 Fuse (6.3A/125V)	AEK−309
⚠	AC Power cord	ADG1033
	Strain relief	AEP−113
	Leaf switch (MOTOR)	AZN1509
	Leaf switch (MUTE)	AZS1060
	Leaf switch (CrO2)	AZS1061
	Leaf switch (REC)	AZS1062
	Motor assembly	AZX1021
	R/P Head	AZP1036
	E Head	AZP1025

POWER assembly (AWZ2288)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	Q501,Q502	RN1201
	Q505	RN1203
	Q506,Q507,Q615	2SA1048
	Q609,Q610	2SA1306
	Q503,Q504,Q704	2SA1515
	Q601,Q602	2SA970
	Q611,Q612	2SC2240
	Q613,Q614,Q702,Q703	2SC2458
	Q603,Q604	2SC2603
	Q605,Q606	2SC2705
	Q607,Q608	2SC3298
	Q701	2SC3377
	Q616	2SD438
	D701	D5SB20F
	D617	HZS12BL
	D702−D705,D707	S5566
	D711 Zener diode	UZ−13BS
	D708,D509,D510 Zener diode	UZ−6.2BS
	D501−D508,D601−D616,D618, D619,D706,D709,D710,D712, D713	1SS252

COILS & TRANSFORMER

Mark	Symbol & Description	Part No.
	L601,L602 AF Choke coil	ATH1004
⚠	T701 Power transformer	ATT1011

RELAIES

Mark	Symbol & Description	Part No.
	RY601	ASR−109
	RY701	ASR1024

CAPACITORS

Mark	Symbol & Description	Part No.
⚠	C717,C718 (0.01μF/AC125V)	ACG1003
⚠	C705−C707 (0.01μF/AC150V)	ACG1005
	C605,C606 (47p)	ACG1016
	C701,702 (8200/71)	ACH1071
	C611−614	CCCSL101K500
	C601,C602	CCMSL100D50
	C603,C604	CCMSL680J50
	C615,C616	CEANP010M50
	C623	CEASO10M100
	C710	CEASO10M50
	C714	CEAS100M25
	C708	CEAS102M16
	C704	CEAS102M25
	C503,C504,C709	CEAS330M16
	C703	CEAS332M25
	C618	CEAS4R7M50
	C711,C715,C716	CEAS470M16
	C712,C713	CEAS470M25
	C607,C608	CEAS470M50
	C617	CEAS471M6
	C619−C622	CFTXA823J50
	C609,C610	CKCYB472K50
	C501,C502	CKDYF473Z50

RESISTORS

Mark	Symbol & Description	Part No.
	VR503,VR504 (10k)	VRTM6H103
	VR501,VR502 (50k)	VRTM6H503
	R629,R630 (0.22μF)	ACN−146
⚠	R715 (2.2M)	ACN−208
⚠	R649,R650,R716	RD1/2PMF□□□J
⚠	R631−R634,R701,R703,R712	RD1/4PMF□□□J
	R601,R602,R605−R612, R619−R624,R635−R641,R643, R644	RD1/4PM□□□J
⚠	R625−R628,R647,R648,R603, R604	RFA1/4PS□□□J
	R646,R714	RS2LMF□□□J
	Other resistors	RD1/8PM□□□J

HEAD PHONE assembly

SWITCH

Mark	Symbol & Description	Part No.
	S601 Push switch (SPEAKERS)	ASG−413

RESISTORS

Mark	Symbol & Description	Part No.
	R651,R652	RS2LMF471J

OTHERS

Mark	Symbol & Description	Part No.
	Jack (HEAD PHONE)	AKN1010

SP OUT assembly

OTHERS

Mark	Symbol & Description	Part No.
	Terminal 8P (SPEAKER)	AKE−111
	Mini jack (REMOTE OUT)	AKN−207

CONNECT assembly

No parts are supplied with the CONNECT assembly.

COMPLEX assembly (AWZ2292)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC203	AN7470P
	IC404	CXA1100P
	IC201	LA1265S
	IC202	LM7001
	IC406	M74LS05P
	IC301,IC304,IC402,IC405	NJM4558DXP
	IC303	TC4052BP
	IC401,IC403	TC4066BP
	Q210	JC501
	Q417	RN1201
	Q409,Q414	RN1203
	Q206,Q207	RN2201
	Q418	2SA1048
	Q208	2SC1740SLN
	Q401,Q402,Q405−Q408, Q410−Q413,Q415,Q416,Q421	2SC2458
	Q203,Q205	2SC2668
	Q202	2SC2786
	Q419,Q420	2SC3377
	Q204	2SK161
	Q201	2SK241
	Q209	2SK246
	Q403,Q404	2SK373
	D201,D202	ITT310
	D301 Zener diode	UZ−5.1BS
	D302 Zener diode	UZ−7.5BS
	D203−D206,D401−D407	1SS252

COILS & TRAN

Mark	Symbol &
	X202 Cr
	X201 Ce
	T201 FM
	T202 FM
	T401 Bia
	L201 FM
	L202 FM
	L203,L20
	L403 Axi
	L401,L40
	L406,L40
	L404,L40
	F202,F20
	F201 FM
	F204 AM
	F401,F40

SWITCH

Mark	Symbol &
	S401 Sli

CAPACITORS

Mark	Symbol &
	C470 (56
	C250 (47
	C226 (47
	C209,C2
	C413,C4
	C215 (10
	C204,C2
	C235,C2
	C409,C4
	C221,C2
	C254 (0.(
	C465,C4
	C401−C
	C463,C4
	C210
	C207
	C205
	C477
	C233
	C216
	C203
	C214
	C213,C2
	C212
	C405,C4
	C248

COILS & TRANSFORMERS

Mark	Symbol & Description	Part No.
	X202 Crystal resonator	ASS1005
	X201 Ceramic resonator	ATF−125
	T201 FM RF transformer	ATC−194
	T202 FM Coupling transformer	ATE−063
	T401 Bias OSC transformer	ATX1007
	L201 FM Coil	ATC1003
	L202 FM Detector coil	ATE−079
	L203,L204 Axial inductor (2.2μH)	LAU2R2M
	L403 Axial inductor (22μH)	LAU220K
	L401,L402 Axial inductor (220μH)	LAU221K
	L406,L407 Inductor (3.9mH)	LTA392J
	L404,L405 Inductor (8.2mH)	LTA822J
	F202,F203 FM Ceramic filter	ATF−107
	F201 FM Band pass filter	ATF−155
	F204 AM Ceramic filter	ATF−208
	F401,F402 Dolby filter	ATF−210

SWITCH

Mark	Symbol & Description	Part No.
	S401 Slide switch (BEAT CUT)	ASH1009

CAPACITORS

Mark	Symbol & Description	Part No.
	C470 (560p/630)	ACE1021
	C250 (470p)	ACE1039
	C226 (47p)	ACG1016
	C209,C227,C246,C305,C306, C413,C414,C482 (100p)	ACG1017
	C215 (1000p)	ACG1020
	C204,C208,C211,C218−C220, C235,C241,C247,C315,C316, C409,C410,C425,C426 (0.01μF)	ACG1021
	C221,C223,C224,C228−C230, C254 (0.022μF)	ACG1022
	C465,C466	CCCSL101K500
	C401−C404	CCCSL181J50
	C463,C464	CCCSL271K500
	C210	CCDCH010C50
	C207	CCDCH020C50
	C205	CCDRH180J50
	C477	CCDSL221J50
	C233	CCDSL271J50
	C216	CCDTH150J50
	C203	CCMCH040C50
	C214	CCMCH080D50
	C213,C217,C244,C245	CCMCH150J50
	C212	CCMCH330J50
	C405,C406	CCMSL100D50
	C248	CEANP2R2M50

Mark	Symbol & Description	Part No.
	C253	CEASR22M50
	C457,C458	CEASR33M50
	C459,C460	CEASR47M50
	C433,C434	CEASR68M50
	C255	CEAS0R1M50
	C232,C411,C412	CEAS010M50
	C242,C252	CEAS1R5M50
	C243,C432	CEAS101M16
	C237,C259,C260,C303,C304, C317,C318,C427−C430, C435−C438,C480,C481	CEAS2R2M50
	C439,C440	CEAS220M16
	C251	CEAS3R3M50
	C206,C225,C231,C256,C263, C313,C314,C451−C454,C478, C479	CEAS330M16
	C234	CEAS4R7M50
	C236,C264,C307,C308,C319, C320,C417,C418,C431,C471, C472	CEAS470M16
	C421,C422	CFTXA103J50
	C222,C240,C423,C424	CFTXA104J50
	C449,C450	CFTXA123J50
	C473	CFTXA153J50
	C447,C448	CFTXA223J50
	C445,C446	CFTXA473J50
	C468	CKCYB182K50
	C469	CKCYB222K500
	C475,C476	CKCYB472K50
	C261,C262,C474	CKCYB682K50
	C311,C312,C443,C444	CKCYB822K50
	C249,C336,C441	CKCYF473Z50
	C419,C420	CKCYX333M25
	C238,C309,C310	CKDYB222K50
	C239,C442	CKDYF473Z50
	C257,C258	CKMYB152K50
	C301,C302,C407,C408	CKMYB391K50
	C461,C462	CKMYB681K50
	C455,C456	CQMA562K50
	C415,C416	CQMA682J50

RESISTORS

Mark	Symbol & Description	Part No.
	VR201 (4.7k)	ACP1024
	VR401−VR404 (10k)	VRTM6V103
	VR405,VR406 (20k)	VRTM6V203
	VR407,VR408 (500k)	VRTM6V504
	R307,R308	RD1/2PMF100J
	R335,R482,R485	RD1/2PM□□□J
	R263,R336	RD1/4PM□□□J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	Terminal 4P (ANTENNA)	AKA1009
	Pin Jack 6P (PHONO,VIDEO/ AUX,CD)	AKB1023
	DC Jack (PLAYER +12V)	AKN−203
	AMRF tuning block	AXX1011

MAIN VR assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC306	NJM4558DXP
	IC305	TA7291S

CAPACITORS

Mark	Symbol & Description	Part No.
	C325,C326 (47p)	ACG1016
	C321,C322	CCMSL330J50
	C327,C328	CEAS2R2M50
	C323,C324	CEAS221M10
	C329,C330	CEAS470M16
	C331	CKCYF473Z50

RESISTORS

Mark	Symbol & Description	Part No.
	VR301 (100k)	ACX1023
	R351	RD1/2PM330J
	Others resistors	RD1/8PM□□□J

CONTROL assembly (AWZ2294)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC102−IC106	BA6144
	IC101	NJM4558DXP
	IC51	PDG037
	Q55,Q56,Q59,Q61,Q62	RN1201
	Q58	RN2201
	Q53,Q57	2SA1048
	Q51,Q54,Q60,Q101−Q110, Q113−Q119	2SC2458
	Q111,Q112	2SC2878
	Q52	2SD438
	D105 LED assembly	AEL1044
	D67,D68 LED	AEL1075
	D69−D74 LED	AEL1077
	D57 Zener diode	UZ−10BS
	D56 Zener diode	UZ−5.6BS
	D62	1SS145
	D51−D55,D58−D61,D63−D66, D81,D82,D101−D104	1SS252

SWITCHES

Mark	Symbol & Description	Part No.
	S51−S73 Tact switch	ASG1029

COILS

Mark	Symbol & Description	Part No.
	X51 Ceramic resonator	ASS1025
	L51 Axial inductor (33μH)	LAU330K

CAPACITORS

Mark	Symbol & Description	Part No.
	C119,C120 (470p)	ACG1019
	C115,C116 (1000p)	ACG1020
	C107,C108 (0.01μF)	ACG1021
	C142 (0.022μF)	ACG1022
	C51 (0.047μF/5.5)	ACH1070
	C136	CEASR22M50
	C101,C102,C133	CEASR33M50
	C58	CEAS010M50
	C146−C150	CEAS100M25
	C127	CEAS101M16
	C125,C126	CEAS2R2M50
	C59	CEAS220M16
	C54,C60,C130	CEAS330M16
	C52	CEAS470M10
	C128	CEAS470M16
	C105,C106	CFTXA124J50
	C140,C141	CKCYB272K50
	C145	CKCYB332K50
	C137,C138	CKCYB682K50
	C143,C144	CKCYB821K50
	C53,C57,C129	CKCYF473Z50
	C134,C135	CKCYX183M25
	C139	CKCYX333M25
	C131,C132	CKCYX473M25
	C117,C118	CKDYB332K50
	C111,C112	CKDYB392K50
	C55,C56	CKDYX104M25
	C113,C114	CKDYX153M25
	C103,C104,C109,C110	CKDYX393M25
	C121,C122	CKMYB221K50

RESISTORS

Mark	Symbol & Description	Part No.
	VR111 (250k×2−B)	ACS1034
	VR101−VR110 (100k)	ACU1032
	R47−R50	RD1/2PM120J
	R59,R60,R100,R196−R199	RD1/4PM□□□J
	R64	RS2LMF390J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	V51 Fluorescent indicator tube	AAV−039
	2P Wire assembly	ADX1190
	REMOTE CONTROL SENCOR assembly	AXX1010

DECK SW assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	D76 LED assembly	AEL1038
	D78 LED assembly	AEL1039
	D79,D80 LED	AEL1075
	D77 LED	AEL1077

SWITCHES

Mark	Symbol & Description	Part No.
	S74−S77 Tact switch	ASG1029

RESISTORS

Mark	Symbol & Description	Part No.
	All resistors	RD1/8PM□□□J

VR LED assembly

SEMICONDUCTOR

Mark	Symbol & Description	Part No.
	D75 LED assembly	AEL1040

PATTERN assembly

No parts are supplied with the PATTERN assembly.

7. ADJUSTMENTS

7.1 TAPE DECK SECTION

7.1.1 Mechanical adjustments

• Adjustment point are as shown in Fig. 7−1

1. Connect the frequency counter to the TP401 terminal (Dolby TP: Lch) on the complex assembly.
2. Turn the tape switch on.
3. Mount the test tape STD−301 onto deck Ⅰ.
4. Short circuit between terminals TP14 and TP15 on the complex assembly and put the deck Ⅰ into play mode. (STD−301 is play backed in double speed.)
5. Adjust with VR503 so that the playback signal freqency of deck Ⅰ becomes 6020Hz ±20Hz.
6. Release the short circuit between terminals TP14 and TP15.
7. Put the deck Ⅰ into play mode and adjust with VR501 so that the playback signal frequency becomes 3010Hz ±10Hz.
   (Note 1: Be sure not to turn VR503 while performing the normal speed adjustment.)
   (Note 2: Be sure to first perform double speed adjustment in both Decks Ⅰ and Ⅱ.)
8. At this point, be sure to confirm that wow and flutter are within 0.3% both in the double and normal speeds.
9. Mount the test tape STD−301 onto deck Ⅱ.
10. Short circuit between terminals TP14 and TP15 on the complex assembly A and put the deck Ⅱ into play mode. (STD−301 is play backed in double speed.)
11. Adjust with VR504 so that the playback signal freqency of deck Ⅱ becomes 6020Hz ±20Hz against that of deck Ⅰ.
12. Release the short-circuit between terminals TP14 and TP15.
13. Put the deck Ⅱ into play mode and adjust with VR502 so that the playback signal frequency of deck Ⅱ becomes 3010Hz ±10Hz against that of deck Ⅰ.
    (Note: Be sure not to turn VR504 while performing the normal speed adjustment.)
14. At this point, be sure to confirm that the wow and flutter within 0.3% both in the double and normal speeds.

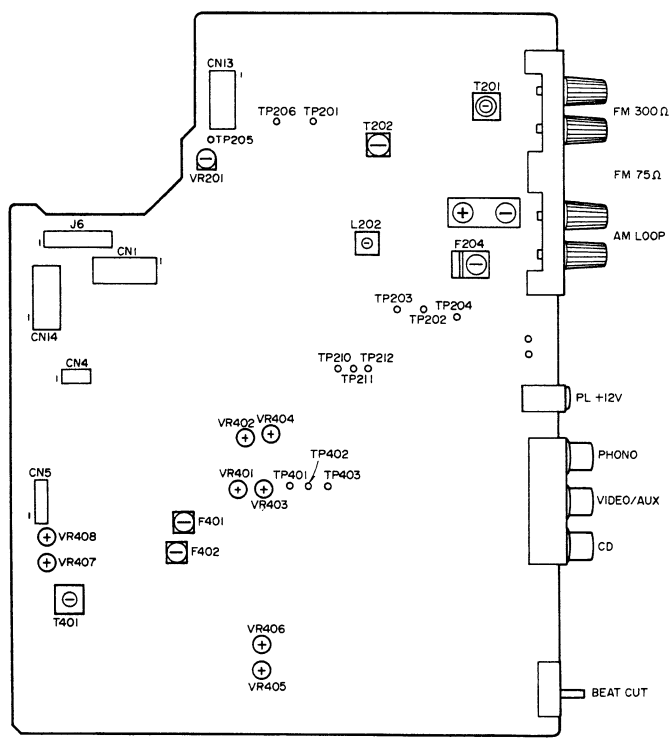


Fig. 7−1 Adjustments point

7.1.2 Electrical adjustments

Adjustment Conditions

1. The mechanical adjustments must be completed first.
2. The head must be cleaned and demagntetized.
3. Turn power on allow the deck to warm up for at least a few minutes before commencing any electrical adjustments.
4. The reference signal is 0dBv=1Vrms.
5. Connect a 50 kilo−ohm (or between 47 to 52 kilo−ohm) load resistance to the OUTPUT terminals.
6. Unless otherwize specified, the switches listed below are left in the positions indicated.
   DOLBY NR :OFF
   TAPE SELECTOR :NORM

List of Adjustments

PLAYBACK SECTION

1. Head azimuth adjustment.
2. Playback level adjustment.

RECORDING SECTION

1. Recording sections
2. Recording level adjustment.

NOTE: This unit has an automatic tape selection feature.

Test Tapes

STD−331B :Playback adjustments (See Fig. 7−2)
STD−608A :NORMAL blank tape
STD−620 :CrO_2 blank tape
STD−610 :METAL blank tape

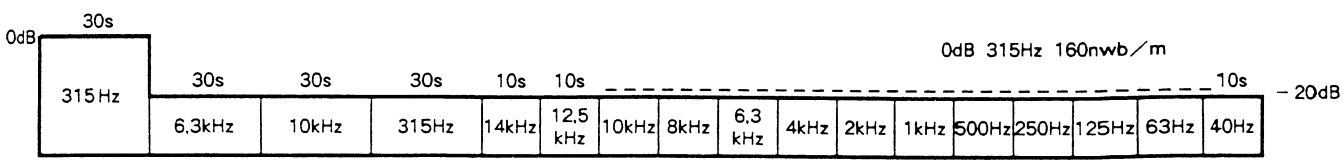


Fig. 7−2 Constants of the test tape STD−331B

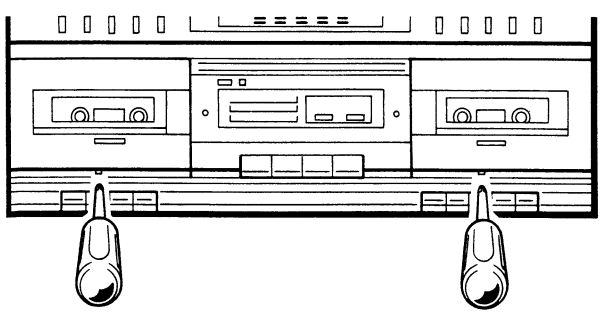


Fig. 7−3 Head azimuth adjustment

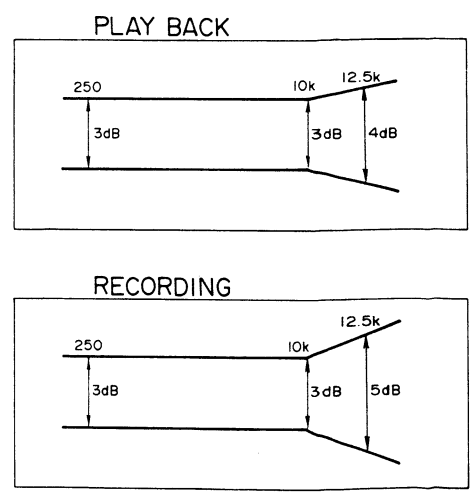


Fig. 7−4 Frequency response

DECK (PLAYBACK SECTION)

1. Head Azimuth Adjustment

• Turn VR, (Deck Ⅰ) or VR, (Deck Ⅱ) to mechanical center positions.

NO	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 10kHz/−20dB section of STD-331B test tape.	Head azimuth adjustment screw. (See Fig. 7-3)	TP401 (L) TP403 (R)	Maximum playback signal level.	
2.	STOP	Lock the screw with scrwe lock after completing adjustment.				

2. Playback level Adjustment

• This adjustment determines the DOLBY NR level, and must be performed with great care.

NO	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 315Hz/0dB section of the STD-331B test tape.	Deck Ⅰ	VR403 (Lch) VR404 (Rch)	TP.401 (Lch) TP.403 (Rch)	−5.2 dBv ±0.5 dBv	Adjust the playback level first at DESK Ⅰ, and then at DECK Ⅱ.
			Deck Ⅱ	VR401 (Lch) VR402 (Rch)			

DECK (RECORDING SECTION)

1. Recording Bias Adjustment

• After the adjustment, caution should be exercised so as not to become under bias by checking the distortion rate.

NO	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	STOP	Set the TAPE SELECTOR switch to the NORM position.					
2.	REC	STD-630 (NORM) −20dB	Deck Ⅱ	VR407 (Lch) VR408 (Rch)	LINE OUT TP401 TP403	0dB ±0.5dB (10kHz/315Hz)	

2. Recording Level Adjustment

NO	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	STOP	Set the TAPE SELECTOR switch to the NORM position.					
2.	REC PAUSE	Apply a 315Hz/0dBv signal to the Line Input terminals.	Rec Level contorol		TP.401 (Lch) TP.403 (Rch)	−5.2 dBv	
3.		Set the DOLBY NR swtich to the ON position. (DOLBY B)					
4.	REC/PLAY	Record the above signal onto the STD-630 test tape, and playback.	Deck Ⅱ	VR405 (Lch) VR406 (Lch)	TP.401 (Lch) TP.402 (Rch)	−5.2dBv ±0.5dB	
5.	STOP	Set the TAPE SELECTOR switch to the CrO_2 position.					
6.	REC/PLAY	Record the above signal onto the STD-620 test tape, and playback.	Confirm		TP.401 (Lch) TP.402 (Rch)	−4.5dBV ±2dB	
7.	STOP	Set the TAPE SELECTOR switch to the METAL position.					

7.2 TUNER SECTION

7.2.1 FM (MONO) Tuner adjustment

- Adjustment point are as shown in Fig. 7−1
- Make the wire connections as shown in Fig. 7−5
- Set the function to FM (MONO)

FM MONO

Item	Adjustment location	Measuring location	Adjustment value	Conditions
Sensivity adjustment	T201	TP210 TP212	Max. voltage	Lebel at which the standard modulation of 98MHz does not saturats voltage of TP3
Tuning voltage check at 8.75 MHz	———	TP201	3.5V ±1.5V	———
Tuning voltage check at 108 MHz	———	TP201	8.7V $^{+1.3V}_{-2V}$	———
T METER adjustment	L202	TP202 TP203	Voltage 0V difference ±10mV	Standard modulation at 98MHz 60dB

7.2.2 FM (STEREO) Tuner asjustment

- Adjustment point are as shown in Fig. 7−1
- Make the wire connections as shown in Fig. 7−5
- Set the function to FM (STEREO)

FM STEREO

Item	Adjustment location	Measuring location	Adjustment value	Conditions
MPX VCO Adjustment	VR201	TP205	76kHz ±100Hz	Non modulation at 98MHz 80dBμV
Confirmation of distortion factor check	———	TP210, TP212	1.5% or less	Stereo modulation at 98MHz 60dBμV
Distortion factor adjustment ※	T202	TP210, TP212	Min. distortion	Stereo modulation at 98MHz 60dBμV

※ Perform the above adjustment only when the distortion factor check exceeds 1.5%.

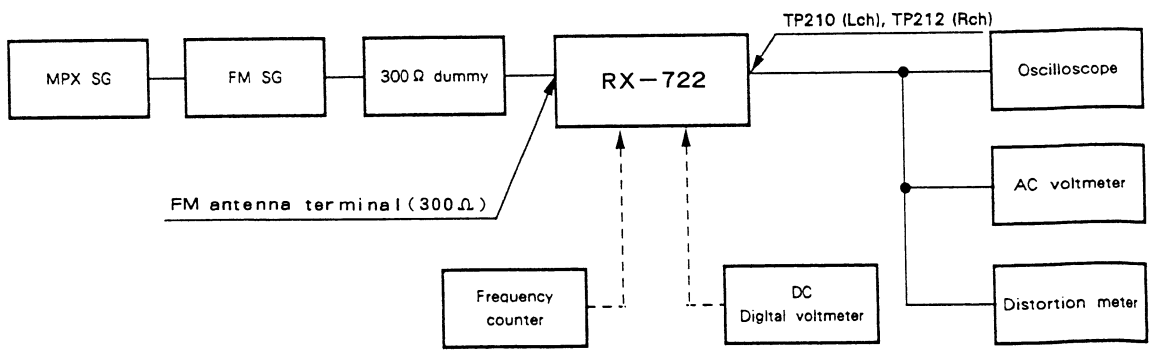


Fig. 7−5 FM adjustment wiring diagram

7.2.3 AM Tuner adjustment

- Adjustment point are as shown in Fig. 7−1
- Make the wire connections as shown in Fig. 7−6
- Set the function to AM

AM

Item	Adjustment location	Measuring location	Adjustment value	Conditions
TURND IND lighting level adjustment	R232	※ CN "TUNED"	60dBμV/m or less	Standard modulation at 1000 kHz.

※10kΩ are applied to the "TUNED" terminal (+B = 5V). TUNED IND lights up at "L" level.

NOTE: Separate the R232 if out of specification.

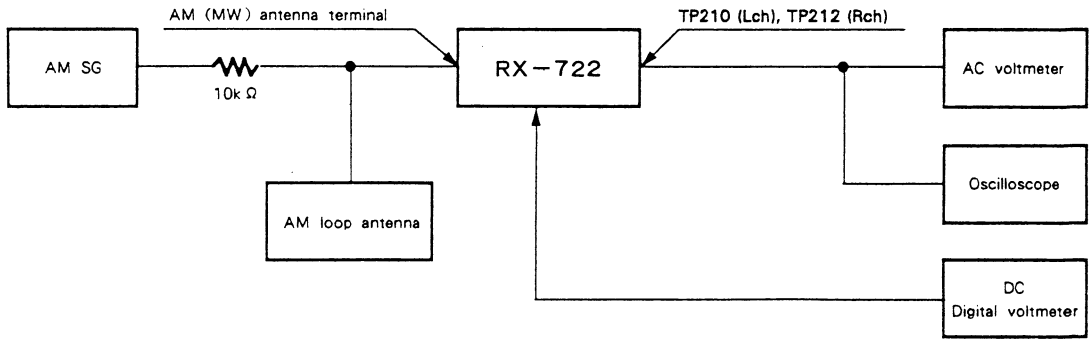
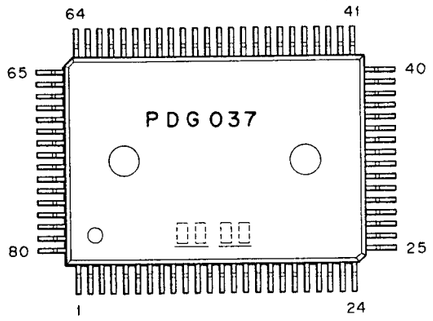


Fig. 7−6 AM adjustment wiring diagram

8. IC INFORMATION

<PDG037> SYSTEM CONTROL MICROCOMPUTER



1. Terminal Functions

No.	Name	I/O	P style	Function	LOGIC
1	S4/PG0	O	P	PB Nr×2, CrO_2	H: CrO_2 playback or high speed copy with tape transport unit 1=normal
2	S5/PG1	O	P	PB CrO_2×2	H: high speed copy with tape transport unit 1=CrO_2
3	S6/PG2	O	P	tape transport unit 2 PLAY/REC	L: tape transport unit 2=REC H: tape transport unit 2=PLAY
4	S7/PG3	O	P	PLAY selection from tape transport units 1 and 2	L: tape transport unit 1=PLAY H: tape transport unit 2=PLAY
5	S8	O	P	Key output	
6	S9	O	P	Key output	
7	S10	O	P	Key output	
8	S11	O	P	Key output	
9	S12	O	P	Key output	
10	S13	O	P	Key output	
11	S14	O	P	Key output	
12	S15	O	P	Key output	
13	S16/T15	O	DP	FL segment a	
14	S17/T14	O	DP	FL segment b	
15	S18/T13	O	DP	FL segment c	
16	S19/T12	O	DP	FL segment d	
17	S20/T11	O	DP	FL segment e	
18	S21/T10	O	DP	FL segment f	
19	S22/T9	O	DP	FL segment g	
20	S23/T8	O	DP	FL segment h	
21	T7	O	DP	Unused (open)	
22	T6	O	DP	Unused (open)	
23	T5	O	DP	FL grid 1	
24	T4	O	DP	FL grid 2	
25	T3	O	DP	FL grid 3	
26	T2	O	DP	FL grid 4	
27	T1	O	DP	FL grid 5	
28	T0	O	DP	FL grid 6	
29	INT	I	C	switchover	L: MW9kHz, FM50kHz H: MW10kHz, FM100kHz
30	XTAL	O	C	Clock pulse output	
31	EXTAL	I	C	Clock pulse input	
32	RST	I	C	Reset	L: Reset
33	NC	—	—	—	
34	V_{DD}	I	—	Supply voltage	
35	PI0/AD0	O	C	VIDEO	H: FUNC=VIDEO
36	PI1/AD1	O	C	TUNER	H: FUNC=TUNER
37	PI2/AD2	O	C	DOLBY IND	H: DOLBY IND light up = DOLBY ON
38	PI3/AD3	O	C	SW INH	H: Scanning in progress with FUNC=TAPE or FUNC=TUNER
39	PB0/AD4	I	C	Key input 0	
40	PB1/AD5	I	C	Key input 1	

No.	Name	I/O	P style	Function	LOGIC
41	PB2/AD6	I	C	Key input 2	
42	PB3/AD7	I	C	Key input 3	
43	NC	—	—	—	
44	PX0/$\overline{SC}$	O	C	Serial clock pulse output	
45	PX1/SO	O	C	Serial data output	
46	PX2/SI	I	C	Auto stop input	L: Auto tuning stop
47	PA0	O	C	Deck SW output 0	
48	PA1	O	C	Deck SW output 1	
49	PA2	O	C	REC IND	L: REC IND light up
50	PA3	O	C	REC CrO_2	H: Tape transport unit 2 = CrO_2
51	PF0	O	C	POWER Relay	H: Relay ON
52	PF1	O	C	LM7001 CE	H: Enable.
53	PF2	O	C	Function SW control A	H: FUNC = PHONO or FUNC = TUNER
54	PF3	O	C	BIAS OSC	H: ON = BIAS OSC
55	PE0	O	C	DOLBY MODE	L: DOLBY ON
56	PE1	O	C	MOTOR 1	H: tape transport unit 1 MOTOR ON
57	PE2	O	C	MOTOR 2	H: tape transport unit 2 MOTOR ON
58	PE3	O	C	TAPE SPEED	L: High speed copy in progress
59	PY0 $\overline{}$	O	C	VOLUME DOWN	H: Motor volume DOWN
60	PY1/$\overline{PWM}$	O	C	VOLUME UP	H: Motor volume UP
61	PY2/WP	I	C	Power failure detection	
62	PY3/$\overline{EC}$/RMC	I	C	Remote control signal input	
63	PD0	O	C	×2 COPY IND.	L: ×2 COPY IND light up
64	PD1	O	C	×1 COPY IND.	L: ON = ×1 COPY IND light up
65	PD2	O	C	PAUSE IND.	L: PAUSE IND light up
66	PD3	O	C	PHONO	L: FUNC = PHONO
67	PC0	O	C	CD	L: FUNK = CD
68	PC1	O	C	VOLUME IND.	L: VOLUME IND light up
69	PC2	O	C	STANDBY IND.	L: STANDBY IND light up
70	PC3	O	C	TAPE	L: FUNC = TAPE
71	Vss	I	—	GND terminal	
72	TX	O	C	Unused	Open
73	NC	—	—	—	
74	TEX	I	C	Unused	Connected to GND
75	V_{REF}	I	—	Reset standard voltage	Connected to V_{DD}
76	V_{FDP}	I	—	Power terminal for FL	
77	S0/PH0	O	P	MUTING	L: MUTING ON (Signal OFF)
78	S1/PH1	O	P	REC MUTE	H: MUTING ON (Signal OFF)
79	S2/PH2	O	P	PB MUTE	L: MUTING ON (Signal OFF)
80	S3/PH3	O	P	PROTECTION RELAY	H: RELAY ON

C: CMOS I/O
P: Pch open drain output
DP: Pch open drain output with pull-down resistor

9. SPECIFICATIONS

Amplifier Section

[RX-522]

Continuous Average Power Output is 110 watts* per channel, min., at 8 ohms from 20 Hertz to 20,000 Hertz with no more than 0.09% total harmonic distortion.**

[RX-722]

Continuous Average Power Output is 125 watts* per channel, min., at 8 ohms from 20 Hertz to 20,000 Hertz with no more than 0.09% total harmonic distortion.**

[RX-522/RX-722]

Input (Sensitivity/impedance)
- PHONO MM . . . . . 2.5 mV/47 kΩ
- CD, VIDEO/AUX . . . . . 150 mV/47 kΩ

Frequency Response
- PHONO MM . . . . . 20 Hz to 20,000 Hz±2 dB
- CD, VIDEO/AUX . . . . . 20 Hz to 50,000 Hz±3 dB

Signal-to-Noise Ratio (IHF, short circuited, A network)
- PHONO MM . . . . . 72 dB
- CD, VIDEO/AUX . . . . . 90 dB

Graphic Equalizer frequency band
. . . . . 100 Hz, 330 Hz, 1 kHz, 3.3 kHz, 10 kHz, ±8 dB

* *Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifier.*
** *Mesured by Audio Spectrum Analizer.*

FM Tuner Section [RX-522/RX-722]

Frequency range . . . . . 87.5 MHz to 108 MHz
Usable Sensitivity . . . . . 14.2dBf, IHF (1.4 μV/75 ohms)
50 dB Quieting Sensitivity . . . Mono: 20 dBf (2.7 μV/75 ohms)
Signal-to-Noise Ratio (IHF, 85 dBf Input) . . . . . Mono:70 dB
Stereo:67 dB
Stereo Separation . . . . . 43 dB(1 kHz)
Frequency Response . . . . . $^{+1.0}_{-1.5}$ dB (20 Hz to 15 kHz)
Antenna Input . . . . . 75Ω unbalanced
300Ω balanced

AM Tuner Section [RX-522/RX-722]

Frequency range
- When 10 kHz step . . . . . 530 kHz to 1,700 kHz
- When 9 kHz step . . . . . 531 kHz to 1,602 kHz

Sensitivity (IHF, Loop antenna) 385μV/m
Antenna . . . . . Loop Antenna

Cassette Tape Deck Section [RX-522/RX-722]

Systems . . . . . 4 track, 2-channel stereo
Heads . . . . . Recording/playback head × 1
Playback head × 1
Erasing head × 1
Motor . . . . . DC servo 2 speed motor × 2
Wow and Flutter . . . . . No more than 0.13% (WRMS)
Fast Winding Time . . . . . Approximately 105 seconds (C-60 tape)

Frequency Response
- −20 dB recording:
- Normal tape . . . . . 35 Hz to 14,000 Hz ± 6 dB
- CrO_2 . . . . . 35 Hz to 15,000 Hz ± 6 dB

Signal-to-Nise Ratio
- Dolby NR OFF . . . . . 50 dB

Noise Reduction Effect
- Dolby B type NR ON . . . . . More than 10 dB (at 5 kHz)

Miscellaneous [RX-522/RX-722]

Power requirements
- U.S. and Canadian models . . . . . AC 120 Volts, 60Hz
- Australian model . . . . . AC 240 Volts, 50/60 Hz
- Other destination model
. . . . . AC 110 V/120−127 V/220 V/240 V (switchable), 50/60 Hz

Power Consumption
- RX-522 . . . . . 380 W, 495 VA
- RX-722 . . . . . 380 W, 495 VA

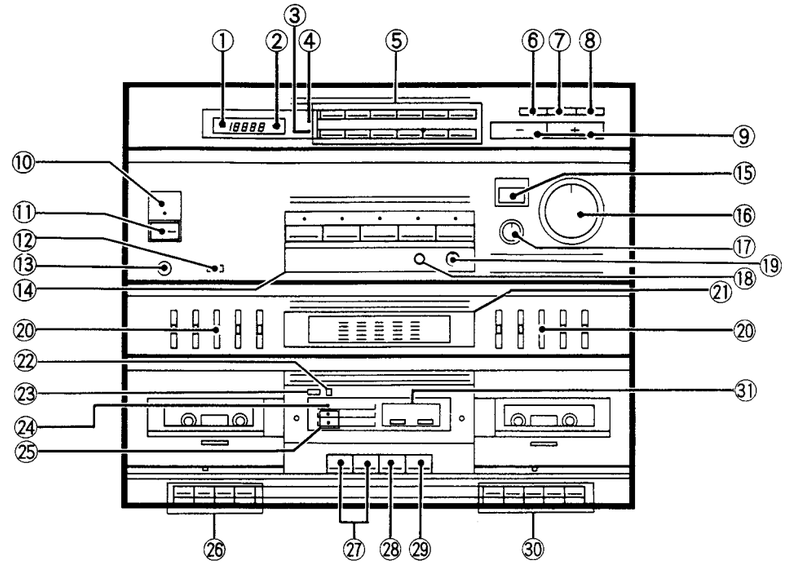
Dimensions . . . . . 420(W) × 349.5(H) × 303(D) mm
16-9/16(W) × 13-3/4(H) × 11-15/16(D) in

Weight (without package)
- RX-522 . . . . . 9kg (19 lb 14 oz)
- RX-722 . . . . . 10kg (22 lb 1 oz)

Furnished Parts [RX-522/RX-722]

FM T-type Antenna 1
AM Loop Antenna 1
Operating Instructions 1
Remote control unit 1
Dry cell batteries [AAA(R03)] 2
Multi-voltage and Australian models:
- Operating instructions for the remote control unit 1

10. PANEL FACILITIES



TUNER SECTION

① FREQUENCY/station number display

② FM MONO indicator

Lights when the FM MONO switch is pressed to select monaural FM reception.

③ STEREO indicator

This lights during FM stereo reception

④ TUNED indicator

This lights to indicate that a station has been optimally tuned in.

⑤ STATION CALL switches

These are used to recall preset broadcasting stations and to preset the station.

⑥ MEMORY switch

This switch is used to memorize stations. When the switch is pressed, the FREQUENCY indicator will flash. To memorize the frequency of any station, press one of the STATION CALL switch while the frequency indicator is flashing.

⑦ FM MONO switch

Normally, the FM MONO indicator remains off. However, it may not be possible to tune in a desired FM station because it is too far away or because its signals are too weak. In cases like these, press the switch to set the reception to the monaural mode (FM MONO indicator lights) and tune in the station. The program of an FM stereo broadcast will be heard in mono. This switch will not function for AM reception. The FM MONO setting is memorized along with station frequency when presetting a station.

⑧ BAND selector switch (FM/ AM)

This is used to select the band of the desired station. The bands change alternately each time the switch is pressed.

FM reception
AM reception

⑨ TUNING switch (−, +)

These are used to locate stations. Push the "−" switch to locate a station broadcasting on a lower frequency and the "+" switch to locate a station broadcasting on a higher frequency.

AMPLIFIER SECTION

⑩ STANDBY/SLEEP indicator

This indicator lights in standby status or when the sleep timer function is operating when the power cord is connected to a power outlet.
When the SLEEP key on the remote control unit is pressed, the sleep function activated for approximately 60 minutes, then enters the standby mode. (The STANDBY/SLEEP indicator flashes faster as the end of the set time nears.)

⑪ POWER (STANDBY/ON) switch

When this switch is set to the ON position, the STANDBY/SLEEP indicator goes out and power is supplied to the main circuits of the cassette tape deck receiver. The POWER unit's switch is geared to selecting the transformer's secondary so that even in STANDBY position, the unit's circuitry will work as long as the power cord is connected to a power outlet.
Disconnect the power cord from the power outlet when you do not plan to use the cassette tape deck receiver for a long period of time.

> *The cassette tape deck receiver has a backup function, so it will return to the original status when the power cord is unplugged and soon again plugged into the power outlet.*

⑫ SPEAKERS switch (A, A + B)

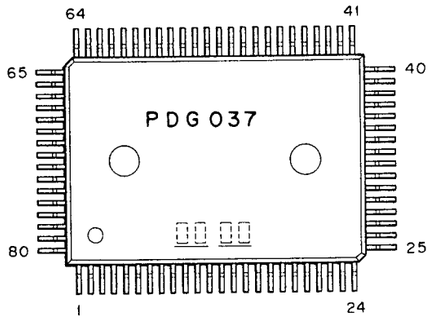
This is used to select the speaker through which you wish to listen.

- A : When the speakers connected to A terminals are in use.
- A + B : When the speakers connected to A and B terminals are in use.
(There is no sound at this position when speakers are connected only to the A terminals.)

Be sure to use A terminals when you use a pair of speakers only. No sound will be heard through the speakers when only a pair of speakers are connected to B terminals.

8. IC INFORMATION

<PDG037> SYSTEM CONTROL MICROCOMPUTER



1. Terminal Functions

No.	Name	I/O	P style	Function	LOGIC
1	S4/PG0	O	P	PB Nr×2, CrO_2	H: CrO_2 playback or high speed copy with tape transport unit 1=normal
2	S5/PG1	O	P	PB CrO_2×2	H: high speed copy with tape transport unit 1=CrO_2
3	S6/PG2	O	P	tape transport unit 2 PLAY/REC	L: tape transport unit 2=REC H: tape transport unit 2=PLAY
4	S7/PG3	O	P	PLAY selection from tape transport units 1 and 2	L: tape transport unit 1=PLAY H: tape transport unit 2=PLAY
5	S8	O	P	Key output	
6	S9	O	P	Key output	
7	S10	O	P	Key output	
8	S11	O	P	Key output	
9	S12	O	P	Key output	
10	S13	O	P	Key output	
11	S14	O	P	Key output	
12	S15	O	P	Key output	
13	S16/T15	O	DP	FL segment a	
14	S17/T14	O	DP	FL segment b	
15	S18/T13	O	DP	FL segment c	
16	S19/T12	O	DP	FL segment d	
17	S20/T11	O	DP	FL segment e	
18	S21/T10	O	DP	FL segment f	
19	S22/T9	O	DP	FL segment g	
20	S23/T8	O	DP	FL segment h	
21	T7	O	DP	Unused (open)	
22	T6	O	DP	Unused (open)	
23	T5	O	DP	FL grid 1	
24	T4	O	DP	FL grid 2	
25	T3	O	DP	FL grid 3	
26	T2	O	DP	FL grid 4	
27	T1	O	DP	FL grid 5	
28	T0	O	DP	FL grid 6	
29	INT	I	C	switchover	L: MW9kHz, FM50kHz H: MW10kHz, FM100kHz
30	XTAL	O	C	Clock pulse output	
31	EXTAL	I	C	Clock pulse input	
32	RST	I	C	Reset	L: Reset
33	NC	—	—	—	
34	V_{DD}	I	—	Supply voltage	
35	PI0/AD0	O	C	VIDEO	H: FUNC=VIDEO
36	PI1/AD1	O	C	TUNER	H: FUNC=TUNER
37	PI2/AD2	O	C	DOLBY IND	H: DOLBY IND light up = DOLBY ON
38	PI3/AD3	O	C	SW INH	H: Scanning in progress with FUNC=TAPE or FUNC=TUNER
39	PB0/AD4	I	C	Key input 0	
40	PB1/AD5	I	C	Key input 1	

No.	Name	I/O	P style	Function	LOGIC
41	PB2/AD6	I	C	Key input 2	
42	PB3/AD7	I	C	Key input 3	
43	NC	—	—	—	
44	PX0/$\overline{SC}$	O	C	Serial clock pulse output	
45	PX1/SO	O	C	Serial data output	
46	PX2/SI	I	C	Auto stop input	L: Auto tuning stop
47	PA0	O	C	Deck SW output 0	
48	PA1	O	C	Deck SW output 1	
49	PA2	O	C	REC IND	L: REC IND light up
50	PA3	O	C	REC CrO_2	H: Tape transport unit 2 = CrO_2
51	PF0	O	C	POWER Relay	H: Relay ON
52	PF1	O	C	LM7001 CE	H: Enable.
53	PF2	O	C	Function SW control A	H: FUNC = PHONO or FUNC = TUNER
54	PF3	O	C	BIAS OSC	H: ON = BIAS OSC
55	PE0	O	C	DOLBY MODE	L: DOLBY ON
56	PE1	O	C	MOTOR 1	H: tape transport unit 1 MOTOR ON
57	PE2	O	C	MOTOR 2	H: tape transport unit 2 MOTOR ON
58	PE3	O	C	TAPE SPEED	L: High speed copy in progress
59	PY0	O	C	VOLUME DOWN	H: Motor volume DOWN
60	PY1/$\overline{PWM}$	O	C	VOLUME UP	H: Motor volume UP
61	PY2/WP	I	C	Power failure detection	
62	PY3/$\overline{EC}$/RMC	I	C	Remote control signal input	
63	PD0	O	C	×2 COPY IND.	L: ×2 COPY IND light up
64	PD1	O	C	×1 COPY IND.	L: ON = ×1 COPY IND light up
65	PD2	O	C	PAUSE IND.	L: PAUSE IND light up
66	PD3	O	C	PHONO	L: FUNC = PHONO
67	PC0	O	C	CD	L: FUNK = CD
68	PC1	O	C	VOLUME IND.	L: VOLUME IND light up
69	PC2	O	C	STANDBY IND.	L: STANDBY IND light up
70	PC3	O	C	TAPE	L: FUNC = TAPE
71	Vss	I	—	GND terminal	
72	TX	O	C	Unused	Open
73	NC	—	—	—	
74	TEX	I	C	Unused	Connected to GND
75	V_{REF}	I	—	Reset standard voltage	Connected to V_{DD}
76	V_{FDP}	I	—	Power terminal for FL	
77	S0/PH0	O	P	MUTING	L: MUTING ON (Signal OFF)
78	S1/PH1	O	P	REC MUTE	H: MUTING ON (Signal OFF)
79	S2/PH2	O	P	PB MUTE	L: MUTING ON (Signal OFF)
80	S3/PH3	O	P	PROTECTION RELAY	H: RELAY ON

C: CMOS I/O
P: Pch open drain output
DP: Pch open drain output with pull-down resistor

9. SPECIFICATIONS

Amplifier Section

[RX-522]

Continuous Average Power Output is 110 watts* per channel, min., at 8 ohms from 20 Hertz to 20,000 Hertz with no more than 0.09% total harmonic distortion.**

[RX-722]

Continuous Average Power Output is 125 watts* per channel, min., at 8 ohms from 20 Hertz to 20,000 Hertz with no more than 0.09% total harmonic distortion.**

[RX-522/RX-722]

Input (Sensitivity/impedance)
- PHONO MM . . . . . 2.5 mV/47 kΩ
- CD, VIDEO/AUX . . . . . 150 mV/47 kΩ

Frequency Response
- PHONO MM . . . . . 20 Hz to 20,000 Hz±2 dB
- CD, VIDEO/AUX . . . . . 20 Hz to 50,000 Hz±3 dB

Signal-to-Noise Ratio (IHF, short circuited, A network)
- PHONO MM . . . . . 72 dB
- CD, VIDEO/AUX . . . . . 90 dB

Graphic Equalizer frequency band
. . . . . 100 Hz, 330 Hz, 1 kHz, 3.3 kHz, 10 kHz, ±8 dB

* *Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifier.*

** *Mesured by Audio Spectrum Analizer.*

FM Tuner Section [RX-522/RX-722]

Frequency range . . . . . 87.5 MHz to 108 MHz
Usable Sensitivity . . . . . 14.2dBf, IHF (1.4 μV/75 ohms)
50 dB Quieting Sensitivity . . . Mono: 20 dBf (2.7 μV/75 ohms)
Signal-to-Noise Ratio (IHF, 85 dBf Input) . . . . . Mono:70 dB
Stereo:67 dB
Stereo Separation . . . . . 43 dB(1 kHz)
Frequency Response . . . . . $^{+1.0}_{-1.5}$ dB (20 Hz to 15 kHz)
Antenna Input . . . . . 75Ω unbalanced
300Ω balanced

AM Tuner Section [RX-522/RX-722]

Frequency range
- When 10 kHz step . . . . . 530 kHz to 1,700 kHz
- When 9 kHz step . . . . . 531 kHz to 1,602 kHz

Sensitivity (IHF, Loop antenna) 385μV/m
Antenna . . . . . Loop Antenna

Cassette Tape Deck Section [RX-522/RX-722]

Systems . . . . . 4 track, 2-channel stereo
Heads . . . . . Recording/playback head × 1
Playback head × 1
Erasing head × 1
Motor . . . . . DC servo 2 speed motor × 2
Wow and Flutter . . . . . No more than 0.13% (WRMS)
Fast Winding Time . . . . . Approximately 105 seconds (C-60 tape)

Frequency Response
- −20 dB recording:
  - Normal tape . . . . . 35 Hz to 14,000 Hz ± 6 dB
  - CrO_2 . . . . . 35 Hz to 15,000 Hz ± 6 dB

Signal-to-Nise Ratio
- Dolby NR OFF . . . . . 50 dB

Noise Reduction Effect
- Dolby B type NR ON . . . . . More than 10 dB (at 5 kHz)

Miscellaneous [RX-522/RX-722]

Power requirements
- U.S. and Canadian models . . . . . AC 120 Volts, 60Hz
- Australian model . . . . . AC 240 Volts, 50/60 Hz
- Other destination model . . . . . AC 110 V/120−127 V/220 V/240 V (switchable), 50/60 Hz

Power Consumption
- RX-522 . . . . . 380 W, 495 VA
- RX-722 . . . . . 380 W, 495 VA

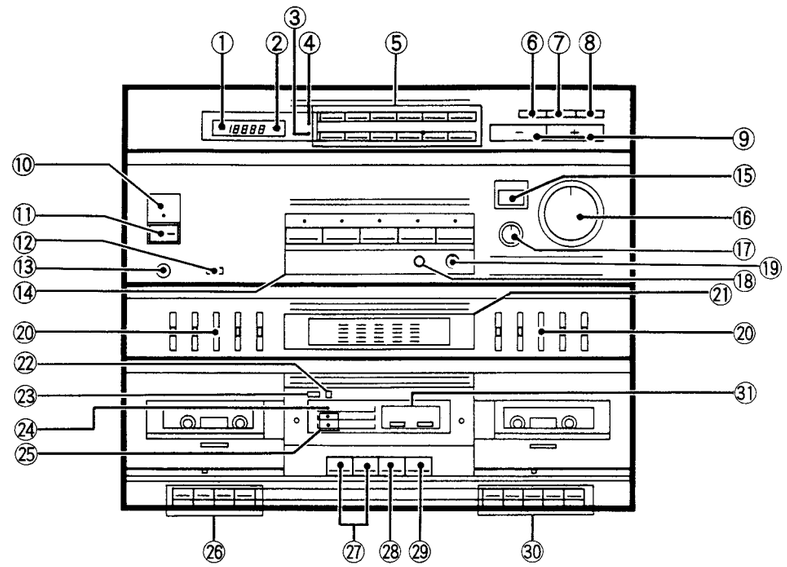
Dimensions . . . . . 420(W) × 349.5(H) × 303(D) mm
16-9/16(W) × 13-3/4(H) × 11-15/16(D) in

Weight (without package)
- RX-522 . . . . . 9kg (19 lb 14 oz)
- RX-722 . . . . . 10kg (22 lb 1 oz)

Furnished Parts [RX-522/RX-722]

FM T-type Antenna 1
AM Loop Antenna 1
Operating Instructions 1
Remote control unit 1
Dry cell batteries [AAA(R03)] 2
Multi-voltage and Australian models:
- Operating instructions for the remote control unit 1

10. PANEL FACILITIES



TUNER SECTION **AMPLIFIER SECTION**

① FREQUENCY/station number display

② FM MONO indicator

Lights when the FM MONO switch is pressed to select monaural FM reception.

③ STEREO indicator

This lights during FM stereo reception

④ TUNED indicator

This lights to indicate that a station has been optimally tuned in.

⑤ STATION CALL switches

These are used to recall preset broadcasting stations and to preset the station.

⑥ MEMORY switch

This switch is used to memorize stations. When the switch is pressed, the FREQUENCY indicator will flash. To memorize the frequency of any station, press one of the STATION CALL switch while the frequency indicator is flashing.

⑦ FM MONO switch

Normally, the FM MONO indicator remains off. However, it may not be possible to tune in a desired FM station because it is too far away or because its signals are too weak. In cases like these, press the switch to set the reception to the monaural mode (FM MONO indicator lights) and tune in the station. The program of an FM stereo broadcast will be heard in mono. This switch will not function for AM reception. The FM MONO setting is memorized along with station frequency when presetting a station.

⑧ BAND selector switch (FM/ AM)

This is used to select the band of the desired station. The bands change alternately each time the switch is pressed.

[FM reception / AM reception]

⑨ TUNING switch (−, +)

These are used to locate stations. Push the "−" switch to locate a station broadcasting on a lower frequency and the "+" switch to locate a station broadcasting on a higher frequency.

⑩ STANDBY/SLEEP indicator

This indicator lights in standby status or when the sleep timer function is operating when the power cord is connected to a power outlet.
When the SLEEP key on the remote control unit is pressed, the sleep function activated for approximately 60 minutes, then enters the standby mode. (The STANDBY/SLEEP indicator flashes faster as the end of the set time nears.)

⑪ POWER (STANDBY/ON) switch

When this switch is set to the ON position, the STANDBY/SLEEP indicator goes out and power is supplied to the main circuits of the cassette tape deck receiver. The POWER unit's switch is geared to selecting the transformer's secondary so that even in STANDBY position, the unit's circuitry will work as long as the power cord is connected to a power outlet.
Disconnect the power cord from the power outlet when you do not plan to use the cassette tape deck receiver for a long period of time.

> *The cassette tape deck receiver has a backup function, so it will return to the original status when the power cord is unplugged and soon again plugged into the power outlet.*

⑫ SPEAKERS switch (A, A + B)

This is used to select the speaker through which you wish to listen.

- A : When the speakers connected to A terminals are in use.
- A + B : When the speakers connected to A and B terminals are in use.
  (There is no sound at this position when speakers are connected only to the A terminals.)

Be sure to use A terminals when you use a pair of speakers only. No sound will be heard through the speakers when only a pair of speakers are connected to B terminals.

⑬ PHONES jack
This is a "standard plug-type jack" for headphones.
NOTE:
Sound is not heard from the speakers when headphones are in use.

⑭ FUNCTION switches/indicators
The indicators light for the specified functions.

⑮ REMOTE SENSOR window

⑯ VOLUME control/indicator
The volume is increased when this control is turned clockwise, decreased when turned counterclockwise. When operating with the remote control unit, the control automatically turns clockwise when "+" is pressed, counterclockwise when "−" is pressed, and the indicator on the VOLUME control flashes rapidly.
The indicator also flashes when the muting function is operated by the remote control unit.

⑰ BALANCE control
Usually set this control to the central position. If turned counterclockwise, the volume of the right channel will decrease. If turned clockwise, the volume of the left channel will decrease.

⑱ MIC jack (excluding U.S. and Canadian models)
Used to connect microphones equipped with standard plug.

⑲ MIXING LEVEL (exluding U.S. and Canadian models)
Adjusts the volume of the microphone.
Increasing the microphone volume reduces the source volume.

GRAPHIC EQUALIZER SECTION

⑳ GRAPHIC EQUALIZER controls

㉑ SPECTRUM ANALYZER display

CASSETTE TAPE DECK SECTION
- The cassette tape deck receiver is provided with an automatic tape selector function.
  Deck I ..... NORMAL/CrO_2, METAL
  Deck II ..... NORMAL/CrO_2

㉒ DECK I TAPE COUNTER RESET switch

㉓ DECK I TAPE COUNTER
3-digital display measures tape travel on deck I.

㉔ DOLBY NR indicator

㉕ COPY MODE indicators

㉖ Deck I switches
► (PLAY) ..... Playback.
◄◄ (REW) ..... Rewind
►► (FF) ..... Fast forward
■/▲ (STOP/EJECT) .... Stops tape travel. Ejects cassette if pressed when tape is stopped.

㉗ COPY MODE switches
These switches are used to select the copy mode.
HIGH ..... High speed copying (double-speed, halftime copying)
NORMAL ..... Normal speed copying
NOTE :
When the COPY MODE indicator is blinking (copy standby mode) the playback operation is not available for only DECK I or only DECK II, and the recording operation is not available for DECK II only.

㉘ DOLBY *NR switch
Press to activate noise reduction system. Use to play back tapes recorded using Dolby B NR.
- Tapes recorded using Dolby B NR should always be played back with the noise reduction system on. Sound quality will be adversely affected if they are played back with the system off, or if tapes recorded using a different noise reduction system are played back with the Dolby B NR system on.
- It is recommended that tapes recorded using Dolby B NR be so marked on the label. This will help to prevent incorrect setting of the noise reduction switch during playback.

*

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"Dolby" and the double-D symbol ⊡⊡ are trademarks of Dolby Laboratories Licensing Corporation.

㉙ Deck II PAUSE (❚❚) switch
This switch is used to temporarily stop the tape in deck II. The PAUSE indicator lights during the pause mode. The pause mode is cancelled when the switch is pressed again. The PAUSE switch will not function while copying a tape.

㉚ Deck II switches
● (REC) ..... Set to the recording mode.
► (PLAY) ..... Playback
◄◄ (REW) ..... Rewind
►► (FF) ..... Fast forward
■/▲ (STOP/EJECT) .... Stops tape travel. Ejects cassette if pressed when tape is stopped.

㉛ DECK II MODE indicators
REC (●) ..... Lights during recordind
PAUSE (❚❚) ..... Lights during the pause mode.

MIC MIXING
(excluding U.S. and Canadian models)

MIXING KNOW-HOW
Mixing involves combining the signals from two input sources (a microphone and a tape, for example)

SINGING ALONG WITH A PROGRAM SOURCE
Operate after setting the MIXING LEVEL control to MIN.
1. Perform the preliminary operations on page 9.
2. Plug a microphone into the MIC jack.
3. Adjust the volume to a suitable level.
4. Set the MIXING LEVEL control to the center position.
   If howling occurs (a high-pitched sound from the speakers), take the following steps.
   (1) Move the microphone away from the speakers.
   (2) Lower the volume.
5. Select the desired program source using the FUNCTION switches.
6. Start playback of the program source.
7. Adjust the overall volume.
8. Using the MIXING LEVEL control, adjust the sound balance between the microphone and the program source.
9. Sing along with the program using the microphone.

NOTE:
- *Recording of mixed sound is possible. Although the sound from the speaker during playback of Deck I will be mixed sound, recording to Deck II will be made by tape sound of the Deck I only.*
- *When not using the MIXING function, be sure to set the MIXING LEVEL control to MIN and remove the microphone plug from the MIC jack.*
- *The graphic equalizer does not affect the sound of microphone.*